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The Media Management and Economics section of the proceedings contains the following 11 papers: "Umbrella Competition among Daily Newspapers: A Case Study of the St. Louis, MO-IL MSA" (Michael Zhaoxu Yan); "Diversity and the Economics of Television: Why the Prime Time Access Rule Has Given Us 25 Years of the Same Old Thing" (Walt McDowell); "An Integrated Model for Determining Channel Diversity in a Multichannel Environment" (Eun-mee Kim); "Marketing Cable Television: Programming and Interactive Service Preferences of Cable Subscribers" (Randy Jacobs); "A Study of Radio Station Managers' Attitudes on Station Format Changes" (Max V. Grubb); "An Investigation of Factors Affecting Job Satisfaction and Career Motivation of On-Air Radio Personalities" (Kathleen A. Fox); "A Theoretical and Methodological Critique of the Principle of Relative Constancy" (Michel Dupagne); "Radio Station Characteristics and the Adoption of Satellite-Delivered Radio Programming" (A. Joseph Borrell); "How Perceived Environmental Uncertainty Influences the Marketing Orientation of U.S. Daily Newspapers" (Randal A. Beam); "Strategic Behavior and Competition in Cable Television: Evidence from Two Overbuilt Markets" (Marianne Barrett); and "Vertical Integration and Consumer Welfare in the Cable Industry" (Hoekyun Ahn). (RS)

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Umbrella Competition among Daily Newspapers:
A Case Study of the St. Louis, MO-IL MSA

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Paper presented to
the Media Management and Economics Division of
the Association for Education in
Journalism and Mass Communication
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Running Head: Umbrella Competition in St. Louis

Umbrella Competition among Daily Newspapers:
A Case Study of the St. Louis, MO-IL MSA

Abstract

Umbrella competition model has been used to examine newspaper competition across city boundaries. Extant research of the model, however, has generally ignored comparing inter-layer and intra-layer competition.

This study tests the umbrella competition model by comparing the intensity of inter-layer with that of intra-layer competition for newspaper circulation in Madison county of the St. Louis, MO-IL MSA. The study confirms the umbrella competition model, showing that inter-layer competition between the metro daily and the suburban newspapers is more intense than that among suburban dailies of the same layer. The implications of the study are discussed in light of the most recent discussions on intercity competition research.

Umbrella Competition among Daily Newspapers

in the St. Louis, MO-IL MSA

Michael Yan

Introduction

Since World War II, the American newspaper industry has been undergoing a major structural change, that is, the decrease of metropolitan dailies and the increase of suburban dailies and weeklies (Rosse, 1978). Parallel with this change is the shift of research focus from intracity competition to intercity competition (Compaine, 1982, Mishra, 1980).

An umbrella competition model has been advanced to describe intercity competition in metropolitan areas (Rosse, 1975). The theory starts by dividing the newspapers in a metropolitan area into four layers. The first layer is composed of metro dailies that provide regional coverage. The second layer includes satellite city dailies. Satellite dailies are similar to the first layer newspapers in content, but more locally-oriented. The third layer consists of suburban dailies, which are outside the central city and very local in their coverage. The last layer is made up of weekly newspapers and shoppers, which are almost exclusively local in nature.

Newspaper competition, according to the umbrella model, is more intense between layers than within layers. One of the reasons is that newspapers compete against each other for advertising and circulation along the fringes of the markets.

Because the geographic boundaries of daily newspapers on the same level overlap only slightly, if at all, there is little or no competition among the papers. On the other hand, because of the greater overlapping in coverage between higher and lower layers of newspapers, newspapers between layers compete for readers and advertisers (Rosse, 1975).¹

The trend of growing newspaper monopoly in central cities and increasing competition between metro and suburban newspapers have aroused economic concern that metro dailies will eventually run suburban newspapers out of business (Roberts, 1981). A related ethical consideration is that the social responsibility of a free press will be limited by increasing intercity competition and decreasing intracity competition (Rosse, 1975). Subsequent studies of umbrella competition, however, have generated mixed results.

A small body of research of intercity competition has advanced since the inception of the umbrella competition model, but extant empirical research on this model has generally ignored comparing inter-layer and intra-layer newspaper competition, a necessary step in validating the model. This study chooses the St. Louis Metropolitan Statistical Area (MSA) to tentatively test the umbrella model by comparing the intensity of between-layer competition with that of within-layer competition using regression analyses.

Literature Review

As shown below, past research based on the umbrella

competition model has either taken the existence of umbrella competition for granted and attempted mainly to gauge its impact on newspaper content, circulation and advertising, or focused only on between-layer competition. In addition, few efforts have been made to statistically test the umbrella competition model by comparing between-layer and within-layer competition.

Lacy's study (1988a) examined the impact of intercity competition on newspaper content. He found that the intensity of intercity newspaper competition is positively related to the percentage of space in a newspaper devoted to general news coverage and local news coverage. Although the study showed that intercity competition is a stronger contributing factor to increased general news and local news coverage than are intracity competition as well as other variables including population, average household income and newspaper circulation, it did not directly and systematically compare intercity and intracity competition. It defined intercity competition as the "percentage of households in a newspaper's county that took another daily newspaper" (Lacy, 1988a, p.402), and the higher the percentage, the more intense the umbrella competition is assumed to be.

In another study of the impact of intercity competition on newspaper content, Lacy (1990) looked at competition between metro dailies and suburban weeklies, testing the hypothesis that "circulation of metropolitan dailies and circulation of suburban weeklies within suburbs will correlate positively with the same categories of suburban news, editorials and advertising" (p.

789). He reasoned that if there are similar patterns of content-circulation correlations between metro dailies and suburban dailies, there will exist substitutability and thus competition between these metro and suburban weeklies. The result of this case study only partially supported his hypothesis with similar correlation patterns appearing only in such content areas as display advertising, insert advertising and local sports.

One example of research on advertising and circulation competition is Lacy's study (1985) measuring between-layer competition in advertising and circulation as perceived by suburban newspaper executives. In this survey, suburban editors and publishers in metro areas with monopolized central markets perceived circulation competition from metro dailies to be greater than advertising competition. On the other hand, those in areas with two or more separately owned and operated newspapers in the central market perceived advertising competition more intense than circulation competition. The study also found that advertising competition was perceived to be more influenced by distance between the metro cities and suburban cities than was circulation competition.

However, Niebauer Jr. et al (1988) found that the newspaper market structure of the central city did not extensively influence either the existence of suburban newspapers or their circulation. On the other hand, as population increases, the circulation of suburban newspapers increases; as the circulation of the metro daily increases, the circulation of suburban dailies

decreases; as the distances of the suburbs from the central market increases, the circulation of the metro daily in the suburbs decreases. Like Lacy (1990), this study focused more on interlayer than intralayer competition.

One of the few studies that directly tested the umbrella competition model is a historical account by Tillignhast (1988) of the southern California papers in the Los Angeles area. The research showed that competition among these papers was limited to between-layer competition and there was little within-layer competition among the dailies.

Another case study, however, came up with different results. Devey (1989) aggregated the total circulation of newspapers in each of the three umbrella layers (metro, satellite and suburban) in the Boston MSA and found that circulation of lower-level newspapers increased at a faster rate between 1945 and 1985 than that of metropolitan newspapers. This led her to refute the hypothesis that interlayer umbrella competition for circulation exists in that area. One of the reasons for the lack of interlayer umbrella competition was thought to be the competitive central market in the Boston MSA which facilitated the continuing growth of satellite and suburban newspapers.

These two studies have their limitations. Whereas Tillinghast (1988) was historical and descriptive, Devey (1989) only looked at the competition between higher-level and lower-level newspapers, ignoring the competition between lower-level newspapers. Besides that, the latter study concluded without

statistical support that the increase in circulation of lower-level newspapers was due to the proportionate decrease of population in the central city and population growth in satellite cities and suburbs during that time period rather than inter-layer competition from the metro dailies. This same study also used aggregated circulation data for each layer, overlooking the fact that umbrella competition might exist only in some counties within a metropolitan area.

Research Design

By stating that between-layer competition is more intense than within-layer competition in a newspaper market, the umbrella model factually involves a comparison of between-layer and within-layer competition, but as the above literature review shows, the previous studies have generally neglected the fact. This study thus goes back to the starting point to test the umbrella competition model, that is, to find out whether the competition between the metro daily and the suburban dailies is greater than the one among suburban dailies.²

As shown earlier, newspaper competition includes content, advertising and circulation competition. Only circulation competition is examined in this study for the reason of simplicity although a rigorous test of the model should consider content and advertising competition also.³

Circulation competition is usually defined according to the cross-demand elasticity theory, that is, if a newspaper's circulation demand is reponsive to another newspaper's price,

content quality, or other choice variables, there is readership competition among the papers. However, while editorial quality is hard to measure, the assumed existence of price inelasticity of circulation demand makes it less meaningful to operationalize circulation competition based on the price cross-demand elasticity theory (Lewis, 1995).

This study, following Lacy (1988a) and Winter (1993), test newspaper circulation competition by examining the extent of local circulation penetration by non-local newspapers from different or the same layers. Interlayer competition is measured by interlayer penetration, i.e., the market share of upper- or lower-layer newspapers (e.g., a metro daily's market share in a suburban county). Intralayer competition is measured by intralayer penetration, the market share of newspapers from the same layer (e.g., a suburban daily's market share in a suburban county). To test the umbrella competition model is therefore to test the following hypothesis:

The interlayer penetration is predictive of newspaper circulation over and above the intralayer penetration.

The Newspaper Market of the St. Louis MSA Metropolitan
Statistic Area is often used to study umbrella competition because generally metro dailies cover this geographic area and the proposed umbrella competition is more likely to occur here (Morton, 1983).⁴ The St. Louis MSA used for the present study includes nine counties, five from the state of Illinois and four

from the state of Missouri. They are Clinton, Jersey, Madison, Monroe, and St. Clair in Illinois, and Franklin, Jefferson, St. Charles and St. Louis in Missouri.

Table 1 shows the daily/dailies each of the nine counties have access to and the circulation and market share (in parenthesis) of the papers in the counties in 1992. As shown, of the nine counties, two (Franklin and St. Charles) have only one daily, the central metro daily *St. Louis Post-Dispatch* ("Post" hereafter), five (Clinton, Jersey, Monroe, St. Clair and Franklin) have one metro daily and one suburban daily and two counties (Madison and St. Louis) have one metro daily and two or more suburban dailies. In addition, Madison, St. Louis, St. Clair and Jefferson are the only four counties in the MSA that have their own daily/dailies.

Table 1 about here

Lacy and Davenport (1994) classified newspaper markets into eight structural types and specified the type of competition potential each type of market would have (see Table 2). According to Table 2, in the St. Louis MSA, there would be no competition in Franklin and St. Charles counties which have only one daily. Five counties (Clinton, Jersey, Monroe, St. Clair and Franklin) where there are one metro and one suburban daily have the potential for inter-layer competition only, whereas two counties, Madison and St. Louis counties which have one metro daily and two

or more suburban dailies, have the potential for both inter-layer and intra-layer competition. Since the purpose of the study is to compare inter-layer competition with intra-layer competition, and also because the *St. Louis Countian* and the *St. Louis Record* have minimal circulation in St. Louis county, only Madison county and the four newspapers it has (i.e., *Alton*, *Edwards*, *Belle* and *Post*) can be and are included in this study.

Table 2 about here

There are four major dailies in Madison county. *Post* is the metro daily. Of the three same-layer papers, the *Alton Telegraph* ("*Alton*") and the *Edwardsville Intellegencer* ("*Edwards*") are published in Madison county while the *Belleville News Democrat* ("*Belle*") is published in St. Clair county. Here, *Post*'s market share in Madison county is the interlayer penetration and the market share of *Alton*, *Edwards* and *Belle* in the county is the intralayer penetration. If the umbrella competition model holds in this county, *Post*'s market share in the county accounts for *Alton*'s circulation change more than *Edwards* or *Belle* does, and *Edwards*' circulation change more than *Alton* or *Belle* does. This can be tested by multiple regression analysis.

Two other variables that are usually thought to account for newspaper demand changes are also included in the analysis. They are household and average household income (AHI). The data set in this study thus includes the households, the AHI, and the market

shares of *Post*, *Alton*, *Edwards* and *Belle* in Madison county from 1971 to 1992.

The circulation and penetration data of the newspapers collected by the American Audit Bureau of Circulation were taken from Circulation. The household and average household income data came from Editor and Publisher Market Guide. SAS/STAT is used for the multiple regression analysis.

Results

Table 3 shows the descriptive statistics (means and standard deviations) of the variables concerned in the study. The Pearson Correlation Coefficients are presented in Table 4.

Table 3 & 4 about here

The Pearson Correlation Coefficient Matrix has a surprising showing, that is, *ECir* has no significant correlation with all the other variables except *EShare*.⁵ The consistency of *ECir*'s lacking correlation with other variables and a further examination of the data set suggest that the phenomenon may be due to the variable's lack of variance in the original data. Therefore, multiple regression on *ECir* is omitted. In other words, only multiple regression on *ACir* is run in this study.

Other things that worth noticing in Table 4 are that *Alton* and *Edwards* have positive correlations in circulation and market share and this is also true for *Post* and *Belle*. Besides, *Alton* and *Edwards* have negative relations with household and income.⁶

Since a time series data set is involved here, Durbin-Watson D statistic is examined before actually running the multiple regression on Alton's circulation. When regression on ACir is run using independent variables *House*, *Income*, *Bshare*, *Eshare* and *Pshare*, the Durbin Watson D value of the model is 1.62 (22,5). The first order autocorrelation .093 is not significantly different from zero ($\alpha=.01$). This means SAS/ETS procedures for time series data are not necessarily needed. This study thus uses the SAS General Linear Model (GLM) procedure for the regression analysis. In addition, because the study is intended to compare the intensity of interlayer with that of intralayer competition, Type III test is specifically interested.

Table 5 about here

Table 5 presents the results of the regression analysis in which the dependent variable is ACir and the independent variables are *House*, *Income*, *BShare*, *Eshare* and *PShare*. The coefficient of determination (the R-square value) of the regression is .947, which means that the independent variables altogether account for 94.7% of the total variance of the dependent variable ACir. This is statistically significant ($p<.05$).

Type III test is an estimation function that can show the unique contribution of each independent variable in explaining the dependent variable(s). As shown in Table 5, two variables,

household income and *Post's* market share, are statistically significant predictors. Their R-square values are 6.06% and 1.74% respectively ($\alpha=.05$). There is a negative regression correlation between *ACir* and *PShare*, showing there is statistically significant interlayer competition between the two papers. On the other hand, the two intralayer penetration variables, *Edwards'* market share and *Belle's* market share, along with the household variable, have non-significant predicting power. The hypothesis is supported here.

Discussion

The study tests the umbrella competition among newspapers in a county. The regression analysis show that in Madison county of the St. Louis, MO-IL MSA, the market share of the metro daily *St. Louis Post-Dispatch* in this county (i.e., interlayer penetration) and the average household income of the county are predictive of the circulation of the county's major daily *Alton Telegraph*, but circulation penetration of two other same-level dailies, *Belleville News Democrat* and *Edwardsville Intellegencer*, are not. The umbrella competition model is thus confirmed in this case study.

The conclusion, however, comes with several shortcomings of the study. First, in order to test the umbrella competition model, considered can be only those counties having access to at least three dailies including both metro and suburban or satellite ones (see Table 2). The St. Louis MO-IL MSA chosen for the study includes only one such county, i.e., Madison county.

The final analysis is thus confined to only one county with a particular structure of newspaper market. The three-firm concentration, which is 56.6%, and the Lacy competition index,⁷ which is 4.6, in Madison county in 1992 (see Table 1) indicate that newspaper market in Madison county is competitive. This area also has a monopolistic central market structure with the *St. Louis Post-Dispatch* dominating the market. It should not be surprising that the nature and extent of umbrella competition differ in different markets. Although individual market analysis has been shown to be able to better describe the reality of newspaper competition (see, e.g., Lewis, 1995), we should go further than market-by-market case studies.

Although the study finds that interlayer penetration rather than intralayer penetration is predictive of newspaper circulation, the contribution of interlayer penetration is very small, that is, accounting for only 1.74% of the variance of newspaper circulation. The great and significant determination coefficient (.947) and small *r*-square value for the individual variables in this case indicate the existence of multicollinearity in the independent variables, a problem the study does not address. The small sample ($N=22$) of the study further worsens the problem of multicollinearity.

In addition, the study reveals that number of household and average household income do not have consistent relations with newspaper circulation. It thus resonates Lewis's (1995) observation that population and income might not be good

variables in explaining circulation demand. Other variables may be missing⁸ and should be included in the study.

In summary, this study is just a tentative step in testing the umbrella competition model. Its shortcomings discussed above limit its validity. However, the way to test the umbrella competition model as proposed in the study, that is, comparing the predictive power of interlayer and intralayer penetration, should not be invalidated by the weaknesses of the study. Future research using this conceptualization should be done with a larger sample size and more carefully selected independent variables. For the former, more counties with umbrella competition potential as defined by Lacy and Davenport (1994) could be sampled to test the model. For the latter, newspaper content and advertising variables, distance between newspaper markets, educational level as well as competition from non-print media could be included in the regression model. Only when more research with more generalizability is done can the umbrella competition model develop to the point that "it can predict the results or explain the nature of intercity competition in individual markets" (Lacy, p. 70, 1988b).

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press. Applied Economics, 25, 1229-1231.

Umbrella Competition in St. Louis

20

Table 1 Circulation and market share of the dailies in the St. Louis MSA in 1992

	Alton@	Edwards	Belle	Fetus	Post	Countian	Record
Clinton			1953 (16.7%)		1263 (10.8%)		
Jersey	3019 (40.3%)				547 (7.3%)		
Madison	25940* (27.2%)	6498* (6.8%)	6051 (6.3%)		21606 (22.6%)		
Monroe			1765 (20.8%)		1516 (17.8%)		
St. Clair			38274* (40.2%)		12322 (12.9%)		
Franklin					5404 (18.5%)		
Jefferson				*#	13192 (21.5%)		
St. Charles					24845 (30.7%)		
St. Louis					242803* (44.4%)	1280* (.2%)	1063* (.2%)
MSA	28959 (3.1%)	6498 (.7%)	48224 (5.2%)		323498 (34.6%)	1280 (.1%)	1063 (.1%)

@ Alton=Alton Telegraph, Edwards=Edwardsville Intellegencer, Belli=Belleville News Democrat, Fetus=Fetus County Democrat, Post=St. Louis Post Dispatch, Countian=St. Louis Countian, Record=St. Louis Record.

* Home county circulation.

Fetus is a non-ABC (Audit Bureau of Circulation) newspaper. The information of the daily is not available.

Data compiled from Circulation 1993 (New York: American Newspaper Market, Inc).

Table 2 Types of Daily Newspaper Market Structure, Percentages of Counties with Various Types and Their Competition Potential

Type of Structure	Type of Competition Potential	Percentage (1988)
No daily newspapers	No competition	1.1%
Only one daily newspaper	No competition	29.6%
Two or more metro dailies but no suburban or satellite dailies	Intralayer competition	3.0%
Two or more satellite dailies but no suburban or metro dailies	Intralayer competition	22.5%
One metro daily and one suburban or satellite daily	Interlayer competition	22.1%
One metro daily and two or more suburban or satellite dailies	Inter- and intra-competition	13.7%
Two or more metro dailies and one suburban or satellite daily	same as above	5.5%
Two or more metro dailies and two or more suburban or satellite dailies	same as above	2.5%

Data compiled from Lacy & Davenport (1994), p. 39.

Table 3 Descriptive Statistics:
Means, Standard Deviations (SDs) and Sample Size (N)

	Means	SDs	N
Alton Cir.	28935	1692	22
Edwards Cir.	6741.2	342.7	22
Belle Cir.	2134.2	1952.8	22
Post Cir.	11278	5775	22
Alton Share	32.8	3.8	22
Edwards Share	7.6	0.7	22
Belle Share	2.3	2.1	22
Post Share	12.5	5.7	22
Household	89036	4953	22
Income	27125	11891	22

Table 4 Pearson Correlation Coefficients

Correlation	ACir	BCir	ECir	PCir	AShare	BShare	EShare	PShare	Household Income
ACir	1.00	-.88	.27*	-.86	.96	-.88	.76	-.81	-.73
BCir		1.00	-.36*	.78	-.92	.99	-.83	.72	.80
ECir			1.00	-.48*	.22*	-.35*	.74	-.50*	-.07*
PCir				1.00	-.77	.76	-.75	.99	.44*
AShare					1.00	-.92	.80	-.71	-.88
BShare						1.00	-.83	.71	.81
EShare							1.00	-.72	-.68
PShare								1.00	.37*
Household Income									1.00

* NOT significant at .01 significance level.

Abbreviations:
 ACir = Alton circulation
 BCir = Belle circulation
 ECir = Edwards circulation
 PCir = Post circulation
 AShare = Alton market share
 BShare = Belle market share
 EShare = Edwards market share
 PShare = Post market share

Table 5 Results of Regression on Alton Circulation (ACir)

	F value	R-square	P	Estimate
	67.62	.947	.00	
IV		Type III Test		
Household				
Income	.67	.22%	.43	-.038
BShare	18.42	6.06%	.00	-.119
EShare	.48	.16%	.50	101.18
PShare	.64	.21%	.44	-231.54
Intercept	5.28	1.74%	.04	-85.52
			.00	38174.8

Notes:

1. Lacy & Simon (1993) proposed to add two more layers to the model. One is a layer of national newspapers above the metro dailies. The other is a layer of group-owned, non-daily newspapers in suburban areas in the bottom. They also pointed out that the number of layers vary in different markets. In addition, there has always been a practical problem in distinguishing the second and the third layer newspapers in many areas due to the difficulties in defining satellite cities. In most cases where the boundaries of the second and the third layers blur, researchers simply clustered the two layers into one (Lacy, 1984).
2. Only two layers, the metro daily and suburban dailies, are discussed in this study because information on weeklies over the years is not consistent and always available.
3. Examining advertising and content competition requires other data, especially qualitative data, and additional research design, e.g., content analysis, which are beyond the scope of this study. In addition, circulation competition is presumptively the basis for advertising and content competition.
4. Umbrella competition could exist in counties outside of the metropolitan areas (Lacy and Davenport, 1994).
5. It is not surprising at all that there is significant correlation between *ECir* and *EShare*.
6. This may be contrary to the common knowledge, but may not be contradictory to common sense. It might just reflect the shift of people's media preference from newspaper to other media.

7. This is determined by subtracting the market penetration of the second largest circulation newspaper from the penetration of the largest circulation newspaper in a market (Lacy, 1987). The smaller the difference, the more competitive the market is.

8. Missing variables is another source of the multilinearity problem.

**Diversity and The Economics of Television:
Why The Prime Time Access Rule
Has Given Us 25 Years Of
The Same Old Thing**

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Running head: Diversity

Diversity and The Economics of Television:
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Abstract

1995 marks the 25th anniversary of the highly controversial Prime Time Access Rule (PTAR) and the first serious consideration of repeal by the FCC. With the intention of limiting the economic power of the networks and thereby generating meaningful program diversity on a local level, PTAR has been the source of disappointment and debate for over two decades. While recognizing that First Amendment issues involving program content regulation are important, this paper emphasizes an economic perspective to explain why PTAR has remained a promise unfulfilled.

The article provides five interrelated factors that have contributed to the rule's poor performance in generating program diversity.

1. The FCC's spectrum management policies that fostered a three network oligopoly on a national and local market level.
2. The Nielsen ratings that lack the depth and precision to measure small specialized audiences
3. The program content theory known as least objectionable programming (LOP) that caters to large homogeneous audiences

4. The program scheduling strategy known as "stripping" which reduces mathematically the availability of program options.

5. The influence of barter syndication advertising which requires a broad national distribution of programs.

The article concludes that real program content diversity is not only a matter of cultivating more program suppliers, but also increasing the number of program channels.

Diversity and The Economics of Television Decree:**Why The Prime Time Access Rule****Has Given us 25 Years of The Same Old thing**

In the fall of 1971, ABC, CBS and NBC were forced to cancel over a dozen prime-time programs in order to accommodate the introduction of a new FCC rule that limited the number of hours of programming the networks could provide to their affiliated stations. Among the canceled shows were, "Hogan's Heroes", "The Newlywed Game", "Let's Make A Deal", and "The Beverly Hillbillies" (Brown, 1971; Shapiro, 1989). According to the new FCC mandate, local station affiliates were to access this vacated time with newly created local and syndicated programming.

With the introduction of The Prime Time Access Rule (PTAR, 1970), the Federal Communications Commission (FCC) ventured into the "vast wasteland" of prime time television. The commission expected that, over time, its decree would stimulate the production of network quality syndicated prime-time programs, thereby enhancing competition among program suppliers. The commission envisioned "an hour of top-rated evening

time for competition among present and potential non-network program sources...so that the public interest in diverse broadcast service may be served" (PTAR I, 23 FCC 2d at 397).

Twenty-four years later, the following programs dominate the same time period that was declared off limits to the networks: "Wheel of Fortune", "Jeopardy", "Entertainment Tonight", "A Current Affair", "Hard Copy" and "Inside Edition". Four of the top six most popular programs are distributed by one company, Kingworld Productions (Blair Television, 1994; NATPE, 1995).

There is no doubt that PTAR truly did restrict the networks, but most broadcasters, FCC commissioners, Federal Court judges, media critics, and scholars have given only faint praise to the rule's ability to inspire significant alternative programming (Sterling & Kittross, 1990; Krattenmaker, 1984). After more than two decades of dodging the issue, in 1994 the FCC announced a formal Notice Of Proposed Rule Making to assess the future value of PTAR (FCC, October 25, 1994). Hearings are scheduled to begin in April 1995.

Analysis and criticism of PTAR have essentially taken two approaches - The first has been a

legal approach that has focused on the limited First Amendment rights of broadcasters and the FCC's authority to intervene in program content. The constitutional issues are provocative and deserving of their own specialized research. For those interested in a more legalistic perspective of the PTAR debate, the author recommends a review of Mt. Mansfield Television v. FCC, (442 F.2d 470, 1971), and the 1994 FCC Petition for Declaratory Ruling filed by First Media Corporation (MMB File No. 900418A).

The second approach, and the focus of this paper, has concentrated more on the practical economic impact of the rule. While the trade press has given PTAR thorough coverage for many years, there is a surprising lack of scholarly research on the economic repercussions of the law. One prophetic journal article, written over 20 years ago, offers insightful analysis and an accurate prediction of the rule's lackluster performance. Hall and Batliva (1973) maintained that the oligopolistic structure of the television industry discouraged diversity. As long as there remained a limited number of channels of distribution, the natural desire to obtain the largest

possible share of a market would inevitably force broadcasters to telecast similar programming. The authors asserted that the key to generating more diverse programming was not the FCC's "Misadventure in Program Regulation" (p. 215), but rather, to establish more outlets. A decade later Krattebmaker (1984) offered more provocative opinion than scholarly substance with his scathing "Six Commandments for Inept Regulation." (p.27). Although PTAR was intended to inspire more program variety an analytical study conducted by Walshlag & Adams (1985) concluded that the national networks responded to PTAR with even less variety in prime time.

Almost 20 years after the rule's inception, Rosencrans (1990) analyzed the economic influence of PTAR rule and observed that, "Rather than shifting control away from the few powerful networks to the many independent program suppliers, the beneficiaries of the shift have been the major motion picture studios, whose television divisions have merely replaced the networks as the dominant programming sources" (p. 66).

This paper explores some of the major economic causes and consequences of PTAR and explains why the

rule has remained a promise unfulfilled. While reiterating valid observations made in prior studies, this paper also incorporates several new perspectives. Section I summarizes the essential components of PTAR and the core issues involved in the upcoming Proposed Rule Making. Section II examines the historic roots of the law and the primary rationales for enacting it in the first place. Section III looks at the immediate and long term consequences of the rule on television programming. Section IV provides a number of economic reasons for the rule's disappointing impact on program diversity, while Section V explores the multi-channel future of television and the relevancy of PTAR. The paper concludes in section VI with a brief summary and discussion of the necessary ingredients for significant program diversity.

Section I

**The Essentials of PTAR
and the Upcoming Proposed Rule Making**

PTAR, in essence, prohibits network affiliates in the top 50 markets from airing more than three hours of network or off-network programming during the four hours of prime time each evening. The rule effectively carves out one hour of "access" time for the local stations to air first-run syndicated or locally-produced programs. All Independent stations, as well as affiliated stations licensed to markets ranked below the top 50, are exempted from the rule.

The FCC enacted PTAR in 1970. Three years later the Commission in PTAR II (1973) reduced the access time to one-half hour and stipulated that it must be between 7:30 and 8:00 pm. The resulting uproar from the National Association of Independent Television Producers and Distributors forced the Commission in 1975 to adopt PTAR III, which increased access time back to one hour within the specified time frame of 7:00 to 11:00 pm (PTAR III, 1975). PTAR III, which has been in effect for almost 20 years, provides for a

number of "waivers" including off-network children's programs, public affairs, and documentaries.

In tandem with PTAR I, the Commission adopted the Network Financial Interest and Syndication Rules. The "Fyn-Syn rules", as they are called, placed severe restrictions on the networks' involvement in program syndication. A network could retain the right to produce or purchase a program for first run airing in prime time, but once that program was available for syndication (ie. off-network), the network had to relinquish all financial interest from profits derived from syndicated sales to stations (Fin-Syn, 1970).

Looking at the multi-channel future and believing that the old fears of "network dominance" were no longer relevant, the U.S Court of Appeals for the Washington D.C Circuit in 1992 persuaded the Commission to begin a multi-stage phase out of the Fyn-Syn rules (Schurz Communications v. FCC, 1992).

Although, the Fyn-Syn rules and PTAR are separate and distinct FCC rulings, they were initiated for all intents and purposes as a "package" designed to restrict the power of the networks over local stations. Therefore, the rationales used to roll back the Fyn-Syn

rules have prompted debate over the continued need for PTAR, particularly the section dealing with off network programming (FCC, October, 1994).

The Two Sides of the PTAR Debate

Aside from First Amendment concerns, the core economic issue the FCC is considering in its rule making proceedings is the alleged disadvantages network affiliates face in an era of increased competition from cable and independent stations. Many of these "independent" stations are affiliated with partial networks such as Fox and the fledgling Warner Brothers and United Paramount networks (Tobenkin, 1995). These three mini-networks are currently exempt from PTAR because they do not provide a minimum of 15 hours of programming per week (FCC, 1994; Jessell, 1995).

Advocates for repeal of PTAR include the three major networks, most station group owners and several major studios that syndicate off-network programming (FCC, October, 1994; Jessell, 1995; Stern, 1994). Under the banner of the Coalition To Enhance Diversity (CTED), these groups urge repeal of the off-network restrictions but retention of the network programming portion of the rule. They maintain that the "original

motivations for the rule - network dominance and scarcity of program outlets - are simply not rational concerns in the 1990s" (New Networks, 1995, p.4).

Those who believe that PTAR should be retained are convinced that the rule has served its purpose in encouraging first run syndication and protecting the interests of struggling UHF independent stations. Groups opposing repeal include the Association of Independent TV Stations, Warner Brothers Network (WBN), United Paramount Network (UPN), and King World Productions (FCC, October, 1994; Stern, 1994). Uniting under the organizational title of Friends of Prime-Time Access, they insist that the repeal of the off-network clause would " stunt the development of the 5th and 6th networks in their infancy" (New Networks, 1995, p.4)

Lacking on either side of the debate is concern over the diversity of program content. The burning question for the FCC appears to be whether the broadcasting industry and the "public interest" are better served by permitting affiliate stations to air old network reruns in prime access (Jessell, 1995). Most participants providing formal comments to the FCC

appear reluctant to address the once great expectations of PTAR I. Krattenmaker (1984) argues that there is no provable reason to believe that television viewers are better off simply because more first-run syndicated programming is produced (p.28).

Section II

The Roots Of PTAR

By the late 1960s, three broadcast networks; ABC, CBS and NBC, dominated prime time television programming in the United States. Although tens of millions of people watched each night, and the three networks were financially successful, many media observers feared that these networks were almost too successful and were not necessarily operating in the public interest.

From a program-content perspective, many critics agreed with former FCC Chairman Newton Minow, that prime time had become, "a vast wasteland" (Barnouw, 1970, p. 196). There was also concern about the sheer economic dominance of the three networks over all of television. Although the networks in some ways were highly competitive, these three media giants also had

much in common. Concerned media onlookers regarded the situation as an **oligopoly**, where the networks controlled too many broadcast hours and produced too many of their own programs. The early development of the network oligopoly has been traced by Long (1979). His study concludes that the FCC's own rule makings in the 1950s contributed to this concentration of economic power (p. 75).

In 1970, after more than five years of extensive studies and hearings, the Commission issued an amendment of part 73 of the Commission's Rules and Regulations with Respect to Competition and Responsibility in Network Television Broadcasting (FCC, May 13, 1970). This document concluded that, "the three national television networks for all practical purposes control the entire network television program production process from idea through exhibition" (p. 389). The formal statement also addressed a growing concern with the networks' sizable financial interests in the syndication of "off network" programs to local stations.

A Matter of Diversity

This criterion of network dominance was used by the Commission to explain a perceived lack of program diversity in American television. Based on a "positive liberty" interpretation of the First Amendment, the commission justified its incursion into program content regulation (Rainey, 1993),

According to Krattenmaker, Metzger & Woodbury (1984), program diversity should be understood through three related dimensions; (a) types of programs (ie. content) (b) sources of programs (ie. suppliers) and, most importantly, (c) the number of outlets (ie. channels). The authors suggest that the most practical means to enhance all three dimensions is to first stimulate a diversity of outlets (p.26).

However, implicit in all of the Commission's analyses and recommendations was the notion that an increase in the diversity of program **sources** would result in an increase in the diversity of program **content**. By restricting the networks' access to prime time and sanctioning local and syndicated producers to create new programs to occupy these access time periods, the FCC hoped that the vast wasteland would

become a garden of worthy innovative programming - without having to increase the number of channels.

Section II

The Results Of PTAR

From the moment it was implemented, PTAR has been one of the most controversial rulings ever passed by the FCC. Many early observers believed the mandate contributed to a decrease in program diversity on the major networks as well as local stations. Although unable to support a direct causal influence, Wakshlag & Adams, (1985) contend that there was a sharp and enduring decline in network program variety associated with the introduction of the Prime Access Rule (p. 27).

One of the most frequent criticisms of network programming in the 1960s was its lack of originality and intellectual risk-taking. When PTAR was first enacted, Variety critic Les Brown, made the observation that by cutting back the number of available prime time hours, the networks became even less daring and innovative than before PTAR (Brown, 1971). Fred Friendly, former President of CBS News and a highly respected professor at Columbia University, stated that PTAR was damaging efforts to achieve "the

imperative goal of the one-hour nightly news broadcast...and imposing a destructive economic hardship on any network that schedules prime-time documentaries" (FCC Moves to Prime, 1970, p. 34). This opinion was echoed by Lawrence White, NBC Vice President of Programming, when he complained that "the loss of prime time by the networks has reduced the ability of the networks to present diversified programming - something we have been under pressure to do" (Three Negative Views, 1971, p. 23).

Six months after the rule's introduction, Newsweek called it, "A Prime Time Fiasco" (Prime Time, 1972, p.68). As early as 1973, FCC Chairman Dean Burch was so disenchanted with the rule that he proclaimed that, "the Commission has simply got to get out of this business of deciding which programs may run in...prime time" (Dean Burch, 1973, p. 19). In 1980, a Federal Court Judge admitted that, "The fact is, as the Commission concedes, that the degree of diversity in programming has been disappointing" (National Ass'n of Independent Television Producers & Distributors v. FCC, 1980). A decade after the rule's inception, an FCC Network Inquiry staff examined the rule's efficacy and

reported that, "the staff was unable to conclude that PTAR reduced 'network dominance' in the sense of increasing the number of outlets or viewing options available to the public" (FCC, 1980, p. 510). This formal inquiry also recommended the repeal of PTAR, but the Commission remained reluctant to take action.

Although at one time the networks had made dire forecasts of huge financial losses due to PTAR (Prospects, 1970), the actual results were that both the networks and their affiliates made considerable profits. When the networks lost the hour or half hour of programming time, they followed the rules of classic supply and demand economic theory and simply raised the advertising rates for their remaining programs. On the local level, stations airing syndicated programs in prime-access had 30 to 50 percent more minutes of commercial time to sell compared to what the networks had once offered. (Brown, 1986). The net financial effect of PTAR was that both the networks and their affiliated stations continued to make profits (Rosenrands, 1990).

Another significant economic result of PTAR has been the growth of viable independent stations. Airing

successful off-network programs such as "Cheers" and "Roseanne" in the 7:00 to 8:00 pm time period has given major market independent stations parity with network affiliates in competing for advertising dollars. In fact, the PTAR exemption has proven to be so successful that ABC, CBS and NBC network affiliates are now claiming that they are at a competitive disadvantage with independent stations (Stern, 1994; New Networks, 1995). PTAR's contribution to the survival of independent station cannot be ignored, but in terms of program diversity, these stations have thrived because they have been allowed to air programs that formerly aired on the major networks.

An unintended consequence of the rule's enactment has been the lack of diversity in the type and number of production companies that produce most of the successful first-run syndicated programming for Prime Access. Table I reveals that throughout the United States, the time period is dominated by just six programs and an even smaller number of suppliers.

Table I

Top Ranked Syndicated Programs

Prime Access - Markets 1 through 50

Program Title/ Syndicator

1. "Wheel of Fortune" - Kingworld
2. "Entertainment Tonight" - Paramount
3. "Jeopardy" - Kingworld
4. "A Current Affair" - 20th FoX
5. "Inside Edition" - Kingworld
- "Hard Copy" - Paramount
6. "American Journal" - Kingworld
7. "Extra" - Warner Brothers

Approximately 140 affiliated stations located in 50 of the country's biggest TV markets air the same half dozen syndicated programs (Blair Television, 1994). These programs are produced and/or distributed by a small number of entertainment conglomerates including Kingworld, Paramount and Twentieth Fox TV and Warner Brothers (NATPE, 1995). These four companies account for 96% of all programming during weekday access time periods in the top 100 markets (Jessell, 1995, p. 66). All but King World now have their own broadcast networks.

Section IV

Why PTAR Has Been A Disappointment

From its inception, many broadcast professionals were pessimistic about the intended goals of PTAR. In 1970, Screen Gems conducted a survey of network affiliated stations in the top 50 markets. The survey asked General Managers and Program Directors to predict the future impact of PTAR on television programming. The results revealed that a large majority believed the rule would (a) not encourage more original and diversified programming and (b) would lead to the deterioration of the over-all quality of TV programming (Dire Predictions, 1971)

To properly understand the failure of PTAR to significantly increase program diversity, the rule must be viewed within an economic framework. Beginning with the presumption that the business of television is the selling of audiences to advertisers, five interrelated factors have contributed to the rule's ineffectiveness. These factors include (a) the commission's spectrum management policies (b) the inadequacies of the Nielsen ratings (c) the theory of Least Objectionable Programming (d) the program scheduling strategy known

as stripping and finally (e) the impact of barter syndication advertising.

FCC Spectrum Management

The regulated structure of the industry and the often quoted FCC doctrine of "spectrum scarcity" made television a mass medium by design. The Communications Act calls for a fair geographic apportionment of channels to all communities. Multiple services or programming choices were only a secondary priority in creating the Commission's channel Assignment Table. Through its spectrum management authority, the commission distributed throughout the country a limited number of VHF stations allocations with a maximum of three assigned to any one market. A second distribution of UHF stations was also created with the same geographic considerations (FCC, 1952). Prior to the enactment of this master plan (FCC Sixth Report and Order), there were a number of alternative plans presented to the commission. Rather than a mixture of UHF and VHF stations in the same market, these alternative proposals advocated "all-UHF" or "all-VHF" markets, thus offering technological parity for competing stations. To the potential investors of UHF

stations, this decision to "intermix" markets was an economic disaster. By 1961 only 5.5 percent of all new television sets made in the U.S were equipped to even receive UHF channels (Krasnow, Longley & Terry, 1982).

Suffering from inherent signal reception problems, UHF stations could not effectively compete for audiences or advertisers. Bensen, Krattenmaker, Metzger & Woodbury (1984) maintain that the Commission's choices to limit the TV band, assign stations locally, and intermix VHF and UHF stations in the same market produced an economic situation that "virtually guaranteed that no more than three full scale, nationwide commercial networks could arise" (p. 14). Except for a brief attempt by the Dumont company in the early 1950s (Hess, 1960), American network television consisted of just three players. With only three VHS competitors in any given TV market, there was no compelling business incentive to indulge small diverse audience segments with unique programming.

On a local market level, the oligopoly concept carries over from the national networks and influences local and syndicated programming airing on affiliated stations. With only a small number of stations

allocated to most communities, these "mini-oligopolies" offer the same low risk, high volume programming in the 7:00 to 8:00 pm time period as the networks do from 8:00 to 11:00 pm.

Television Audience Ratings

Another factor hampering the growth of diverse program content has been the lack of sophisticated audience measurements. A program's success or failure is usually measured by the Nielsen audience ratings. At best, the ratings are a rather blunt instrument, measuring only households and age/gender attributes of an estimated audience (Buzzard, 1992). Standard broadcast ratings cannot reveal subtle qualitative differences among audience segments. For almost 45 years, the TV networks have prospered by selling mass homogeneous audiences to national advertisers. Diversity in program content was considered risky. Instead, the networks applied a program formula that guaranteed big undifferentiated audiences. The formula was called LOP - Least Objectionable Programming.

Least Objectionable Programming

NBC researcher and programmer, Paul Klein, is credited with coining the term LOP or Least

Objectionable Programming. The central idea was that a program that generated only moderate liking, but was hated by no one, would draw bigger audiences than a program that elicits extreme positive or negative opinions. LOP theory presumes that in a group viewing situation, a family will probably choose the least objectionable program (Eastman, 1993, ch 4). There have been several empirical studies that validate the LOP theory, including one done by Rust, Kamakura and Alpert (1992). As long as there are only a few channels from which to choose, the LOP theory of programming will prevail.

Strip Programming

Another contributing factor affecting the perceived lack of program diversity in the access time period deals with the simple mathematics of program scheduling. Prior to the implementation of PTAR, the three national networks provided a different program each week night at 7:30 pm. During a typical week, between 12 to 15 different programs were telecast (Shapiro, 1989). This scheduling technique is known as "checkerboarding".

With the advent of PTAR, local stations were forced to program the same time slot. It did not take long for these stations to realize it was far more cost effective to schedule the same program five nights a week. This technique, known as "stripping", soon became the standard format for most major market stations (Eastman, 1993, ch 3). In terms of program diversity, the mathematics of stripping reduces significantly the number of program options. At 7:30 pm, instead of a dozen or more choices per week, viewers today are usually given no more than three "strip" programs.

Between 1975 and 1977, one syndicated program supplier, Sandy Frank Program Sales, Inc., attempted to defeat the anticompetitive nature of strip programming by petitioning the FCC to amend PTAR with an "Anti-multiple Exposure" amendment. The Commission refused to give the concept serious consideration, claiming that such a rule change would create First Amendment conflicts involving excessive intervention in program content, (FCC, 1977). Thus, the Commission basically said that checkerboarding could not be mandated even in the name of program diversity.

In their zeal for more program diversity, the creators of PTAR failed to take into account the economies of scale between network and syndicated programming budgets. While the four major networks can recover an investment of up \$1 million per episode for a nationally distributed prime time program, independent syndication producers are confined to much smaller budgets (Eastman, 1993; NATPE, 1995). By restricting network and off-network programming from 7:00 to 8:00 pm, PTAR turned the time period over to less affluent production companies with limited distribution. The result was a host of inexpensive "stripped" game shows and tabloid news programs (Brown, 1986; Sterling & Kittross, 1990),

Barter Programming

In the early 1970s, most stations were balking at the license fees syndicators were demanding for access programming but soon an alternative to cash payments was devised that satisfied both parties. Instead of a total cash payment for a program, the station provided commercial time to the syndicator. This "barter" time (usually one minute) was resold to national advertisers with all revenues going to the syndicator. What began

as a device to offset production costs and syndicated rights fees eventually became a huge industry. Today, virtually all prime access syndicated programming contains national barter commercials (NATPE, 1994). According to the Association of Syndicated Television Advertisers, this \$1.5 billion industry refers to itself as a "Fifth Network" for mass market advertising (ASTA, 1994).

Once again LOP theory comes into play. In order to be cleared in as many TV markets as possible and generate high audience ratings for these national brand advertisers, the syndicated program suppliers must produce shows that have a broad homogeneous audience appeal. Regardless of the supplier, the content of a barter syndicated program remains a captive of a mass marketing.

Section V

The Channel Explosion And The Future Of PTAR

For decades, the objectives of PTAR were thwarted by the five interdependent factors addressed in section IV. It was not until the late 1980s with the successful introduction of the Fox network and the growth of cable programming that the original three

network oligopoly began to experience serious competition (Eastman, 1993). Network ratings for ABC, CBS and NBC have dropped significantly in the past ten years (Eastman, 1993, ch 4). Technological innovations, such as digital compression and fiber optics, are facilitating the development of a multichannel "Information Superhighway". By the year 2000, many cities will have hundreds of programming options, including video on demand and interactive capabilities. With this increase in channels there will soon be what some scholars call, "The Race For Content" (Freedom Forum Media Studies, 1994, p. xxiii).

Advertising professionals have anticipated and welcomed this channel explosion for some time. In 1990, an article in Inside Media entitled "The Death of Mass Marketing", envisioned a radically different media environment that "would respect consumers not so much for what they have in common, but for ways they are unique. So the trend toward more segmented marketing and the use of special interest media...will accelerate" (p. 54). This anticipated diversity of program options has placed new pressures on Nielsen and other research organizations to provide more

qualitative audience data (Gunter, 1993). After decades of frustration, a crucial element for significant program diversity - more channels - has finally come of age

Section VI

Conclusion

As a weapon to halt the domination of the three networks and stimulate program diversity, PTAR has often misfired or, in some cases, backfired in the face of its founders. Either by choice or by chance the Commission's spectrum management policies helped create a three network/VHS station oligopoly that by its very nature discouraged content diversity. The noble but naive aspirations of PTAR's decree could not overcome the economic realities of the television and advertising industries.

In its recent Notice, the Commission concedes that "One conceptual criticism of the rule's current ability to encourage diverse programming ...is that economic incentives, rather than the source of the programming, may play the greater role in determining the program type the public sees" (FCC, October, 1994). Amen.

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Student Paper

An Integrated Model for Determining Channel Diversity in a Multichannel Environment

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I. Introduction

A quick survey of current trade press covering cable television industry tells that prevailing concern of cable system operators and cable networks, especially those up-starting, lies at the impact of re-regulation and rate roll-back. Reduced profits of a local systems will limit the number of new services that the operators might intend to add and this, in turn, will result in difficulty of networks in achieving enough level of access to the audience.

Accumulating critical mass of subscribers, which is usually said to be 30 million, is critical for up-starting networks. There are numerous new and proposed basic cable networks, some up-starting and some spin-offs from existing networks, which plan to launch in no time ("New network ...", *Cablevision* Aug 8, 1994). These networks try to promote themselves to the system operators in addition to consumers despite the hostile regulatory environment in anticipation of so-called '500-channel' television environment. Established networks are no exception in competing with one another to increase access coverage¹. Access through local system carriage is the foundation of business for a cable programming network -whether it is basic, premium, or pay-per-view network. Economies of scale are realized from the network's point of view since first copy costs of program acquisition and programming (putting programs together as a schedule) per viewer gets smaller as it achieves higher coverage. Coverage rate of a network depends on each operator's system programming decision -- how many channels to put together as a bundle and which networks to select.

¹The proportion of subscribers who have access to the particular network out of total cable subscribers in the U.S.

Even though spectrum scarcity is not a problem for cable television industry, not every network, even the best, is guaranteed to have 100% coverage. First of all, there is a physical limit due to the channel² capacity of the kind of wire used for cabling. This technological capacity is the primary limitation on how many networks a system can have in its system programming line-up. A system with channel capacity of 12 cannot carry more than 12 networks without going through some costly plant upgrade.

Then the following questions arise. Is technological capacity only factor determining the number of programmed channels(channel capacity carrying programming networks) television viewers can receive? Will '500-channel TV environment' be panacea for increasing the array of services viewers receive since all 500 channels will be programmed with various kinds of broadcasting and narrowcasting networks? If there are factors affecting the number of programming networks a local cable system can carry other than channel capacity, finding out what they are and in what way they affect cable system programming in current environment are important not only to better understand the current state of cable television industry but also to make more realistic predictions about the '500-channel world' - television without technological limit.

This study borrows theoretical framework from a model developed to understand newspaper industry. We can always learn lessons from other mass media industries. A comparison can be made between bundling diverse sections together in a newspaper and bundling different programming networks together in a local cable system. Before introducing full model, a simplified example seems appropriate at this point. A small local town

Throughout this study, a 'channel' refers to physical conduit of programming, but not the content or programming network.

newspaper (for example, 'Evanston Review') cannot have sections such as 'Woman news' or 'Good eating', which are included in big city papers such as 'Chicago Tribune'. 'Evanston Review' is not technologically limited from including those minor-interested sections in its paper. However, 'Evanston Review' is economically constrained from doing so. Because with smaller subscriber base 'Evanston Review' relies on, it is simply not economically viable to have all the diverse sections that 'Chicago Tribune' would have. Smaller subscriber base means less subscription revenue and less advertising revenue that can sustain such diverse contents.

Are small cable systems free from such economic constraints that 'Evanston Review' faces in this example? Will technological upgrade solve all the constraints and make even systems serving small number of cable subscribers carry as many programming networks as big urban systems have?

Economic constraint of the local market is not solved by technological advance alone since an operator must decide the number of channels to program based on marginal revenue and marginal cost its own market incurs. That is, an operator would add a network as long as the marginal revenue potentially earned from adding an additional network covers the marginal cost (such as added operating cost and transaction cost) it incurs. Even though there are more programming networks than available channel capacity in the systems, some operators might choose to program only certain number of channels that is economically viable leaving some portion of channel capacity unused.

Ultimately, the willingness for consumer to subscribe to cable depends on the quantity and the quality of the programming the local cable operator in its area offers. On the other hand, cable operators adjust quantity and quality of service in addition to marketing strategies and infrastructure investments so as to maximize returns under each circumstance(Hazlett,

1994). An operator decides how many and what kind of services its system offers based on the economic condition of local market in which a system is located as well as the demographics of the service area (assessment of potential and actual subscriber preferences). Although 100% coverage (that is 62% of total TV households in the U.S. as of this writing) is ideal for every programming network, the rate cannot but be constrained by economic factors affecting local systems' carriage decisions. Cable systems need operational flexibility -- so that they can properly respond to market changes and regulatory structure changes--, and for that reason alone some systems might not want to maximize the number of programmed channels up to the channel capacity (Solomon, 1989). Some networks are bound to be left out from being carried. Varying rate of coverage determines the competitiveness of the programming networks. 1993 Myers Reports Survey of Cable Operator Executives on Basic Networks shows that the majority number of the up starting networks are only considered by less than 5% of the systems surveyed. To some extent, competition among the wholesalers of cable programs, that is, programming networks, is determined by the system-level programming decisions. Chipty (1993) listed three kinds of effects local system's carriage decision had on the profitability of programming networks: advertising revenue, popularity of the network (externality), and quality of programs. Studying economic factors affecting local cable system programming¹ will be a starting point in understanding why only a limited number of networks survive in cable television industry.

It has been often assumed that the number of programmed channels of the local system increases and thus more networks become viable with higher coverage as long as channel

¹ As 'programming' means putting programs together in a schedule, 'system programming' can be defined as putting programming services or networks together in a cable system service package to subscribers.

capacity increases to contain them. It was the kind of optimism that prevailed in the Sloan commission report (Sloan Commission, 1971) in the early days of cable television, which resurrected recently with the '500-channel' scenario. This study attempts to find out economic factors affecting local system operators' system programming decisions. And as we have many more emerging video delivery technologies of multichannel nature which emulate the programming, operation and management of cable television, it is meaningful to examine the behavior of 'old' industry at this point of time.

The following section reviews why studying the determinants of programmed channels in a cable system is important along with Wildman model of newspaper content diversity which will be used as a major theoretical framework. Section III deals with literature review. Section IV proposes an integrated model for determining channel diversity (defined in section II), which is empirically tested in the subsequent sections. Section V as a brief description of data and method. Section VI reports results of statistical analysis and section VII concludes with discussing implications of the result.

II. Theoretical framework

1. Channel diversity

Programs and the audience they attract are the products by which media industry's performance is measured. Diversity in programming has been one way to evaluate the television industry. Diversity is not only important to increased consumer surplus, but also has the political value of providing citizens with more information and access to a wider range

of viewpoints. However it is hard to define or measure diversity. There are numerous ways to approach diversity.

Scholars of communication and economics have tried to measure diversity in television network programming in relation to economic factors such as the level of market concentration, competition among networks, and the number of channels over many years. To list a few, Greenberg and Barnett (1971) examined the relationship between program type and the number of channels; Dominick and Pearce (1976) found market concentration inversely correlated with diversity; while Litman (1979) found just the opposite. These scholars measured diversity by the number of program types (which are commonly stated as program genres) available within a given time and the range of viewing options available within a program type.

Diversity is multi dimensional in terms of the scope of the definition and also across time. It can be the number of program types or it can be the number of options available within a particular type. It can be examined across channels at a given point of time or longitudinally.

The following studies have examined the diversity of cable programming. Wildman and Lee (1989) examined program repetition rates and also devised a diversity index based on an industry definition of the program genre. Waterman and Grant (1991) analyzed programming origin, subject, and format of 3 over-the-air broadcasting networks and 34 cable networks during 1986. De Jong and Bates (1991) defined diversity as the number of networks cable system operators carry. Waterman (1986) offered an explanation for why direct pricing of programs to viewers and increased channel capacity could not bring the 'narrowcasting' of 'high culture' programming into being. He pointed to a shortage of demand - a shortage of viewers with high willingness-to-pay - as the critical factor. And he also pointed out that

increased channel capacity was not used for new and fresh kinds of programming but for program repetition within a channel and intermedia repetition (sequential windowing) of mass appeal programming.

As mentioned above, diversity is a complex concept and it can be measured in many different ways. Whichever way it is measured, defining diversity requires a lot of subjective judgement and has unavoidable limitations. It is hard to refute the argument that every program is different and at the same time one can say that all programs are essentially the same. Owen(1977) argued, while pointing out the limitations of counting the genres/formats as a way to measure diversity in television programs, that it is unreasonable to assume that consumers do not obtain some positive utility from having choices among substitute programs within the same basic format and that diversity of format/genre is unrelated to any measurable economic index of consumer well-being. Information about consumer demand for program genres/formats is very difficult to collect.

Following Owen's view on diversity, this research regards the number of channels programmed by an operator as one way of measuring diversity in a multichannel television. In this definition, channel includes the numbers of over-the-air channels, distant broadcast signals, basic and premium cable networks, public access channels, and pay-per-view channels—the number of total channels programmed by an operator. Each network carried is assumed to be equivalent to 1 hypothetical unit of diversity. Assuming no two identical programs are aired at the same time by more than one cable channel in a system, one additional channel programmed by an operator means that a subscriber/viewer has one more program to choose from at a given point of time.

2. Wildman model of newspaper section-bundling

Wildman model(1991, lecture; 1994) of newspaper content diversity addresses why sections of a paper are added or dropped. This model provides a framework which can be applied to the examination of the diversity in cable system programming.

- Let
- F_i = First copy cost of section i
 - MC_i = Marginal cost per copy of section i
 - S_i = Fraction of subscribers that read section i
 - C = Circulation of the newspaper
 - R_i = Revenue generated by a reader of section i .

When deciding whether to add section i to the paper, a newspaper publisher will equate revenue generated by adding section i with the cost it incurs and will add a section if the cost is equal or smaller than the revenue expected. This condition is written as

$$R_i * S_i * C = F_i + (MC_i * C).$$

If we rearrange this equation, we have critical threshold proportion of subscriber on which the decision for adding a section depends on. Let this critical fraction of subscribers be $\underline{S}_i$.

$$\underline{S}_i = (MC_i / R_i) + (F_i / R_i * C).$$

This final equation tells that as cost relative to revenue goes up the critical threshold also goes up. Moreover, it suggests that with large circulation critical fraction of the readers that makes a particular section financially feasible goes down.

According to the model, larger circulation reduces critical fraction of the readers that makes a section financially viable. For example, while a paper with circulation of 100,000 needs only 10% of its readers' interest in the new, say, 'womenews' section which it considers adding, another paper with 10,000 readers need 100% of its readers' interest in the newly proposed content to offer a comparable addition. With large group of readers, more diverse sections can be published. In addition, each section comes to have higher quality since more

money is invested in anticipation of subscription and advertising revenue based on the size of readers. These factors make the paper with large circulation more attractive to the audiences with wide ranging interests. Bundling of diverse features in a paper can be compared to bundling of diverse programming networks in a cable system despite a number of differences between the two media. At the heart of the analysis is a more general model of inter-temporal inter-media flow of media products (Wildman, 1994).

This model of newspaper section bundling suggests that the primary relationship between the number of programmed channels and the number of cable subscribers in the system area should be examined. The model predicts that, as the number of subscriber increases, the number of programmed channels offered in a system will increase holding all other factors constant. The larger the subscriber base, an operator would put more video programming up to the point where marginal revenue-subscription revenue and advertising revenue becomes zero.

An operator can expand revenue by the ancillary services such as pay-per-view and subscription to premium channels. The amount of ancillary revenue becomes larger when subscriber base is large. An operator might still want to increase the number of programmed channels as long as the cost of adding a channel is justified by just maintaining current subscription rate (that is, reducing the churn rate). The relationship between subscriber base and channel diversity should be measured holding the channel capacity constant since it poses a limit to the number of channels possibly programmed.

An integrated model proposed and tested in the study is an application of the theoretical reasoning explaining newspaper content diversity. In determining the primary relationship between subscriber base and channel diversity of system programming, economic factors affecting revenue and cost of local cable systems will be incorporated in the integrated model.

It should be acknowledged that newspaper and cable television are two entirely different industry. The model here is presented as an example of general model defining the relationship between quality of the media product and market size. Market size determines expected revenue and investment on the product is made according to the amount of expected revenue. In general, product quality is higher in larger markets.

III. Previous research

Unfortunately, there has been little research to date which has focused on systematic analysis of cable system programming. Paucity of previous literature partly reflects lack of research in the area of cable television as a whole. The differences among systems in terms of the number of available channels not in use and the reason behind it have not been addressed yet. However, the factors affecting the profitability of cable system (thus affecting marginal cost/revenue of adding a programmed channel) have been explored in the following studies.

Evaluating viability of cable systems

Vogel (1990) points out that profitability of a cable system is usually measured by population density of the area the system serves and cable penetration figure since much of a system's operating cost is fixed and independent of subscriber numbers and the only major variable costs are drop charges and the cost of installing converter boxes. It means that there is economies of scale realized by population density and system size.

Some factors were found to positively affect basic penetration, which results in revenue increase. The more stations a system carried, the fewer of each type of OTA stations

receivable, the older the system was, the farther away the area was from OTA stations, the lower the price was, and the higher the average household income was, the higher the penetration rate was. Park(1971) also acknowledged that the cost factors might limit the number of services a system can provide. Work on the costs of cable systems suggested that penetration on the order of 40 to 50% were necessary to support advanced local origination.

Baer & Park (1972) conducted financial projections for the Dayton Miami Valley area and revealed that financial results varied depending on subscriber penetration, monthly subscriber fee, and characteristics of geographical area covered.

Woodard(1974) suggested a list of criteria by which a franchise area's viability as a cable market could be evaluated. They were: Size in terms of the number of subscribers, cost of plant, number of franchise, population density, penetration rate, community growth in terms of new homes as potential subscribers, state of the economy of the community, presence of local college or university both as a potential programming source and as a measure of culturally up scale audience, cost-of-living index, estimated average subscriber billing, availability of FM radio stations, franchise terms, potential advertising time sales, and application expense. He also emphasized the availability and the number of local television stations. He recommended cable systems to give the subscribers maximum number of programmed channels as an incentive to subscribe.

Kent G. Webb's (1983) book titled The economics of cable television is devoted to various economic aspects of cable television. Especially relevant to this study is econometric analyses estimating cost and demand of cable television.

Sources of cost were categorized into equipment, programming cost, operating expense, and franchise fee. Equipment cost consisted of headend, distribution plant, subscriber interface, and studio for local origination. Operating expense was mostly labor

cost, especially technical labor. He estimated operating cost and depreciation cost, in his econometric equation, on the basis of miles of plant and size of the system in terms of subscriber count. He concluded that cable system was a natural monopoly with declining average total cost with the number of channels, number of subscribers, and size of the geographical area (miles of cable). He also pointed out that most dramatic is the declining cost per subscriber given a cable system of a fixed channel capacity and length of plant. Part of the reason was spreading headend cost. Since he used 1982 data, we should be cautious in accepting the results as of today.

Among statistically significant socioeconomic variables determining demand of basic cable were per capita income, index of home equipment, and education. Among the most important determinants of demand for basic cable were the number, type, and quality of signals carried by the system compared with those available over the air in the local market. Imported signals resulted in increasing penetration and consumer surplus while marginal cost of adding an imported signal was quite low.

Pacey(1985) tested a model of the demand for basic service. Her independent variables were factors describing cable system, subscriber demographics, and local market characteristics which she called environmental characteristics. OTA signals were separately entered as primary network, duplicative network, independent, educational, and local origination. What was unique about the study was that she included pay television characteristics in estimating demand for basic cable. Among the findings were that urban subscribers were more likely to be responsive to subscription fee than rural and that demand for basic cable was quite elastic with respect to the price of cable television.

Channel diversity of cable system programming

Eastman(1989) lists 4 elements affecting system programming: Legal carriage requirements, technology, economics/cost which are license fee, signal importation fee, spot availability, promotional support, satellite placement, and marketing considerations meaning demographic and psychographic composition of coverage area local audience. Demographic factors are commonly understood as a major determinant of the mix of cable networks.

Dejong & Bates's (1991) study on channel diversity defines diversity as the number of channels. They tracked absolute and relative diversity according to the definition of Levin(1971) at three points of time. Absolute diversity was operationalized by the number of different channel types carried by a system divided by the total number of channel types⁴ for the cable industry. Relative diversity was operationalized by the number of different channel types divided by the channel capacity of the system. Diversity⁵ was measured at three points of time, 1976, 1981, 1986, roughly responding to periods of high, moderate, and no regulation. They found that diversity increased over time. But, the growth in relative diversity was substantially less than that of number of channels, and the relative and absolute diversity measures indicated that the average cable systems offered less than half of its potential for diversity. The authors believed that greater channel capacity and regulatory freedom fostered the growth and expansion of cable.

⁴They categorized available programming services into 32 different types following industry conventions.

⁵They acknowledged that measuring diversity was problematic. They relied on industry sources for the typology of channel types. It is somewhat easier to categorize channels than individual program since each cable programming service, for their own marketing need of positioning, has its own identity. However, it does not eliminate the question of internal validity. It is an empirical matter whether the actual consumer perceives two programming services in the same channel type as substitutes.

However, the authors did not provide any answers as to why cable had not lived up to its full potential, as to why a system operator had channels not in use when there were more than enough programming services to fill up to the channel capacity. Their research was limited to be descriptive in nature. Channel capacity might remain an economically scarce commodity despite the advancement of technology. This study aims to provide answer for that.

The relationship between channel capacity and channel diversity should be considered with a caution that capacity is given as an exogenous variable once constructed. It is possible that a system with large capacity programs only small number of channels because the overly optimistic information estimated at the time of franchise application and construction can be corrected over the course of operation as more accurate information on the profit potential of a specific market is revealed.

An econometric analysis of competitive effect of broadcast signals on the performance of cable, controlling system and local market characteristics was done by Dertouzos & Wildman (1990). Performance of cable system was operationalized in three ways: subscriber counts, program service offerings, and prices of these services. System related control variables were length of system, homes passed, age of headend, channel capacity, and whether or not the system is managed by an MSO. Market demographics included ethnic composition of population, projected population growth, employment, income, home and VCR ownership, and geographical location of the system. The study concluded that five OTA signals constituted effective competition to local cable system. The effect of system and market characteristics on basic cable programming was also dealt in this study. Channel capacity, projected population growth, MSO, and to the lesser extent employment were statistically significant variables influencing the number of basic services the system offers.

Smaller systems expand the number of basic networks rapidly with increases in channel capacity. As capacity grows beyond fifteen, the percentage change in basic offerings increases less rapidly.⁶ These results of cross-sectional analysis were similar to what Dejong & Bates (1991) found in their analysis - that increases in channel diversity were less than those in channel capacity over time. The results show that marginal value of an additional channel tends to decrease as channel capacity expands. Additional subscribers picked up by one more programming channel should be increasing at a decreasing rate. There are other economic factors limiting the number of services carried in a system, which this study will find out. Rural areas, areas with higher population growth projection, MSO managed systems and systems facing higher competition from OTA TV carried more basic networks.

In their another study, Dertouzos & Wildman (1993) emphasized that the cost of running a cable system made critical differences between markets and that factors which accounted for the systematic difference between systems should be accommodated when studying cable television. According to their analysis, system age largely dictates channel capacity which is a driving force behind channel diversity. In addition, younger systems are more likely to have more service and/or less expensive in regards to its basic service because operators can expect higher ancillary revenue through technological capacity such as PPV and local commercial insertions.

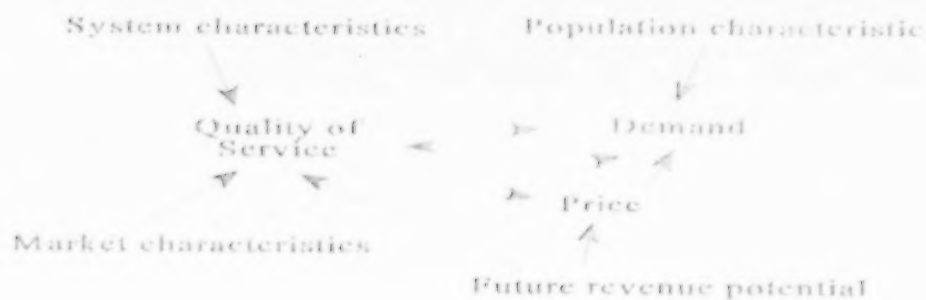
Thorpe(1985) did a study of the effect of competition from non cable programming service on the market power of cable system. A part of the study explored the factors affecting programming decisions of a system: the total number of cable channels programmed and the number of pay television programs offered. Population of the franchise area and

⁶The study included top 20 basic and 4 superstations. The number of networks carried is 24 at maximum.

channel capacity were positively associated with the number of programs offered. Age of the system, TV market ranking, and household income were negatively associated. Competition from subscription TV, ownership affiliation between the system and a pay TV programmer, MSO, presence of rate regulation, and physical obstructions of television signals were included in the analysis, but did not appear to influence the number of cable programs offered.

IV. An integrated model for determining channel diversity of cable television

1. Local economic factors affecting profitability of a cable system



This diagram of seven interrelated constructs represent the model determining channel diversity of cable television. Diversity is one of many aspects of the quality of cable television service. Addressability can be another aspect and local origination programming can be another aspect. These are all different aspects of quality of service which requires investment and investment is sensitive to market situation.

There are three endogenous factors that the model attempts to explain: quality, demand, and price. Quality is determined by demand, market characteristics, system characteristics,

and future revenue potential. Demand is affected by quality of the service, price, and population characteristics. And finally price is a function of market characteristics, system characteristics, which together determine costs of running a cable system, and quality of the service. Quality variable that will be analyzed in this study is total number of programmed channel. Demand variable is the number of subscribing households each system has. Price is operationalized as the price for subscribing the most basic tier and the price for most comprehensive basic package. Systems differ in terms of tiering basic cable package. Both price measures will be used initially to see which one fits better for the model.

Waterman & Weiss (1994) noted that per channel cost is fixed with respect to the number of subscribers and represents the cost of maintaining and marketing an extra channel and contracting with the network, plus the opportunity costs of not carrying some third network that is also available. And operators will add channels as long as marginal cost of adding a channel equates with marginal revenue. With per channel cost fixed and marginal revenue declining in larger channel systems, it is expected that channel diversity increases with the market size, measured by subscriber base, but at a decreasing rate. The primary relationship this study attempts to probe is the one between quality of the service and market size (demand).

Each theoretical construct in the above diagram is represented by several variables. The following variables affect cost and revenue for running a system. The variables and their expected relationship with exogenous variables are discussed.

(1). Market characteristics

A. The number of local broadcast stations

Competition from other home entertainment media affects profitability of cable systems. An operator, facing higher competition, is likely to increase the quality of service including channel diversity. With other forms of multichannel service such as DBS or MMDS still in the nascent stage, broadcast television is the key source of competition for cable television operators.

B. The proportion of population dwelling in the urban environment

Other than broadcast television environment, there is a gap between urban and rural areas in terms of general entertainment options. Urban environment will have a lot more entertainment options alternative to cable television. On the other hand, urban lifestyle and rural lifestyle might differ in terms of demand for television entertainment. How urban and rural markets differ in terms of cable television quality and demand will be examined in the study.

C. Density

Housing density is measured by the number of households passed by cable per line mile. Housing density is a key factor determining operating cost of a system including cabling costs. The systems located in denser housing area are likely to carry lower cost of maintaining the system holding other factors constant.

D. Average wage

As with any other business, higher wage level increases cost of running a system. However, average wage also affects income level which has opposite effect on the profitability of running a cable system.⁷

E. Income

Median household income in 1989 is used to measure the income level of the area. It is known that those with higher income are more likely to subscribe cable. In addition, higher income audience increases attractiveness of the medium to the advertisers.

(2) Future revenue potential

A. Retail sales growth rate

Retail sales growth increases local advertising demand, resulting in the increase of marginal revenue by adding a programmed channel. Average retail sales growth rate of the area over last 5 years is used.

B. Projected population growth rate

Systems located in the area with higher population growth projection have higher incentive to increase quality of service since potential market is expanding. Higher population growth will positively work for channel diversity.

(3). System characteristics

⁷Bivariate correlation coefficient ($r = .63$) between average wage and income was high, but not so much as to cause serious multicollinearity problem in the regression.

A. Channel capacity

Channel capacity means the maximum number of channels that the wire can transmit within the intended service area. In Dertouzos & Wildman (1993), channel capacity was significant factor in determining the number of basic network a system carried. Channel capacity physically limit the possible number of the service provided. Marginal value of available but not in use channel can be higher in a system with smaller channel capacity.

Webb(1983) found out that the operating expense (excluding programming costs) was not measurably different for a 12-channel or 36-channel system. It means that the average operating expense per channel declined as the number of channel increased.

According to 1993 Myers Report, 20.6% of 603 cable system executives interviewed said that they had no channel capacity expansion plan at the time. That corresponds to 42.0% of systems of under 10,000 subscribers and 26.4% of systems with less than 49 channel capacity respectively while only 5.8% of the systems with 50,000 or more subscribers and 17.5% of systems with 49+ channels had no plans for expansion. Systems serving smaller number of subscribers are less likely to expand channel capacity.

B. Age of the system

Older systems are expected to have smaller channel capacity. Moreover, newer systems are likely to have improved amplifier which can enlarge channel capacity. However, considering the accumulated marketing efforts of older system, the penetration rate is likely to have large subscriber group (probably at the saturation stage).

Age of the system also makes difference in other technological capabilities such as pay-per view, addressability, and local commercial insertions. With the basic cable rate held constant, system operators have higher incentive to increase number of channels offered in the

basic package because of the higher ancillary revenue from the subscribers(Dertuozos & Wildman, 1993).

Older systems are more likely to be located in poorer OTA television reception areas.

C. MSO management

It needs to be questioned whether MSO managed systems are better for consumer welfare in terms of programming service, that is increased channel diversity. If MSO systems are indeed better and efficient, channel diversity should increase as the size of the MSO gets larger holding other key factors constant. It is operationalized as the number of systems nationwide managed by the given MSO.

E. Vertical integration

Systems vertically integrated with programming networks have higher incentive to carry integrated network, which can add to the number of channels programmed. But on the other hand they also have incentive to reduce the number of networks competing with the integrated network for viewership. In that case integrated relationship can negatively affect channel diversity.

(4) Population characteristics / Demographics

Demographic variables which are expected to influence the demand of cable television or TV viewing behavior should be included. Previous research indicated that age, the number of households with children, education, household size, and income were among the key demographic factors affecting demand for cable television.

Younger, higher-income, and higher educated population is more likely to subscribe cable. Also households with children and those with larger family are more likely to do so. Diversity of the population should be positively related to channel diversity.

2. The model

As mentioned above, the two major dependent variables are channel diversity(TOTAC) and the size of subscribing households(HHSUB). However, one becomes an independent variable to each other. As diversity increases there is higher incentive for a viewer to subscribe cable as long as a viewer can derive utility from getting a diverse menu of television programming. If a viewer derives utility only from getting a clear reception of over the air signals, which indeed is known as one of major reasons for subscribing cable, diversity might not matter much for those viewers. However, it is reasonable to assume that a viewer perceives the quality of cable television higher when there are more channels offered in the service. On the other hand, as explained earlier, a system operator has higher incentive to offer more channels when it has more subscribers to serve.

Therefore, according to this model of reciprocal relationship(simultaneous equation) the variable 'diversity' (total number of programming services programmed in a system) is explained by the number of subscribing households (HHSUB) and all of the independent variables. For example, the demographic variables such as 'AGE50' and 'HHSIZE' affects channel diversity even though in the diagram above it looks like it only affects the number of subscribing households. They affect channel diversity indirectly through the variable 'HHSUB'. In the same way, 'HHSUB' can be explained by diversity and all other independent variables in the model.

Another important variable is channel capacity which is a key independent variable affecting channel diversity. Channel capacity is given after the time of construction, so it can be reasonably assumed as exogenous.

Table 1: Variable name, definitions, and source

Variable	Description	Source
TOTAC	Total # of channels carried by the system (all kinds of channels)	FCC
HHSUB	The # of households subscribing to cable	FCC
LNHUB	Logged form of HHSUB	
HH	The # of households within the system area	FCC
CH-CAPA	Maximum number of channels the system can carry	TV&cable factbook
AGEHH	Age of the system principal headend	FCC
VI	The number of fulltime national programming network vertically integrated with the system operator (5 % equity or more)	Waterman & Weiss(1995)
MSOSIZE	The total number of systems operated by the system operator	FCC
AVGWAGE	Average wage of the county where the system is located	REIS [*]
DENS	Density of the housing units measured by the number of hh passed by the line divided by the line miles	FCC
PRJ-POP	Projected population growth rate	Rand McNally (1994)
RTLGRW	Average retail sales growth rate over the past 5 power	Survey of buying
INCOME	Median income of the area	FCC
LOCAL	The number of local broadcast television signals carried by the system	FCC
IMC	Monthly charge to tier 1 (Basic subscription fee)	FCC
HHBASC	Monthly charge for the most comprehensive basic	FCC
URBAN	% of population living in the urban environment	FCC
AGE50	% of population aged over 50	Census
EDU-COL	% of college graduates	Census
CHILD	% of households with children	FCC
HHSIZE	Average number of persons living in a household	Census

^{*}Regional Economic Information System (1990)

The major hypothesis is that subscriber base will be a strong predictor of channel diversity holding the channel capacity (and other economic factors) constant.

Large subscriber base would make it viable for a system to have more channels programmed. Various factors affecting marginal cost and marginal revenue of adding a programmed channel will also determine the channel diversity. Population (audience) characteristics will also matter.

The number of channels to program in a cable system will vary as a function of local market condition, system-specific characteristics, and demographic characteristics. Since relative revenue and costs are related to such observable factors, predictions could be made about the circumstances under which a system is more likely to increase channel diversity. As capacity increases, there should be a point where consumers get less redundant and truly diversified service from the cable system of the area.

V. Method of data analysis

The study analyzes FCC cable TV rate survey database collected through December, 1992 and February, 1993. Since the period is pre-regulation (of 1992) it is assumed to reflect market solutions without distortions possibly introduced by regulation. There are 496 cases in the final data set but this study used a subset of random non-competitive systems which were 244 cases in total. Excluded cases were purposive sampling of top 100 systems, small systems (less than 30% penetration) and overbuild systems. The unit of analysis is a cable system.

Additional information was added to the original FCC database. Channel capacity was recorded from Television & Cable Factbook (v61). Population growth projections by county

were recorded from Rand McNally Commercial & Marketing Atlas(1994). Retail growth rate over the past 5 years by county was compiled and computed from Survey of buying power(1993, 1992, 1991, 1990, 1989). Additional demographic information such as average family size, education, and age group was added from 1990 Population & Housing Census.

Since cable systems are varied in terms of their profiles, a multivariate econometric analysis is desirable to account for the differences among the local cable systems. Economic factors(including audience factors) that might constrain channel diversity of a local system could be fully explored through data containing local characteristics.

Two-stage least squares estimate was used for the simultaneous equation multiple regression analysis. This particular type of regression estimate was necessary since the two key dependent variables in the model are at once independent variables to each other. Two stage least squares estimate purges the correlated errors introduced by this mutual relationship and correctly measures two equations determining each dependent variable.

V. Results

The following model with three endogenous variables, TOTAC, HHISUB, and IMC/HIBASC (for the price measure) was initially put to a test. It turned out that the relationship between channel diversity and the number of subscribers was curvilinear. Diversity increased as the subscriber base increases at first and then beyond certain point did not increase. Natural log of HHISUB(LNSUB) was used in place of HHISUB to make the curvilinear relationship fit for the linear model. Transforming HHISUB into LNSUB resulted in a nice linear relationship between the two key dependent variables. **

$$\text{TOTAC} = f(\text{LNSUB}, \text{HH}^9, \text{VI}, \text{MSOSIZE}, \text{AVGWAGE}, \text{CH\_CAPA}, \text{DENS}, \text{LOCAL}, \text{INCOME}, \text{URBAN}, \text{PRJ\_POP}, \text{RTLGRW})$$

$$\text{LNSUB} = f(\text{TOTAC}, \text{IMC}/\text{HHBASC}, \text{AGEHH}, \text{INCOME}, \text{URBAN}, \text{LOCAL}, \text{VCR}^{10}, \text{AGE50}, \text{EDU\_COL}, \text{CHILD}, \text{HHISIZE})$$

$$\text{IMC} = f(\text{TOTAC}, \text{AVGWAGE}, \text{AGEHH}, \text{MSOSIZE}, \text{VI}, \text{DENS}, \text{PRJ\_POP}, \text{RTLGRW})$$

During the course of analysis, a few modification was made to the original model. The most important thing is that the price variable was dropped from the model. The price factor was not significant in determining the demand level (LNSUB) of the system (which itself was a rather surprising result). In addition, the equation with price variable as an endogenous variable had negative adjusted R-squares with F-statistics of .91 ($p = .51$). It is apparent that the price equation was not appropriately specified. However, since measuring the determinants of price is not a primary question of the study and it was found that price was not a factor affecting demand level, the price variable was dropped and the final model analyzed consists of two endogenous variable.

VCR penetration rate was at first included as a variable measuring overall media appetite of the population. However, this variable is endogenously determined by other variables in the model and thus was dropped. MSOSIZE and VI was highly correlated and MSOSIZE was dropped to avoid multicollinearity problem.

Resulting final equations estimated are as follows.

$$\text{TOTAC} = f(\text{LNSUB}, \text{VI}, \text{AVGWAGE}, \text{CH\_CAPA}, \text{DENS}, \text{LOCAL}, \text{INCOME}, \text{URBAN}, \text{PRJ\_POP}, \text{RTLGRW})$$

$$\text{LNSUB} = f(\text{TOTAC}, \text{HH}, \text{AGEHH}, \text{INCOME}, \text{URBAN}, \text{LOCAL}, \text{AGE50}, \text{EDU\_COL}, \text{CHILD}, \text{HHISIZE})$$

⁹The number of households in the system area

¹⁰VCR penetration rate of the county that the system is located in

Table I: Statistical results of an integrated model determining channel diversity

1. First equation: Dependent variable.. S7_TOTAC

Multiple R	.85644
R Square	.73349
Adjusted R Square	.71693
Standard Error	5.63488

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	10	14069.304	1406.9304
Residuals	161	5112.056	31.7519

F = 44.31011 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
LNSUB	1.607998	.592866	.301358	2.712	.0074
VJ	.100256	.061151	.069249	1.639	.1031
AVGWAGE	5.46877598E-05	.000175	.021005	.313	.7548
CH_CAPA	.287789	.045554	.361501	6.318	.0000
DENS	.032662	.016081	.099096	2.031	.0439
LOCAL	.601863	.174821	.176127	3.443	.0007
INCOME	7.63949052E-05	5.5261E-05	.083040	1.382	.1688
URBAN	.007265	.014741	.026481	.493	.6228
PRJ_POP	.018997	.105003	.008214	.181	.8567
RTLGRW	.150476	.076648	.089368	1.963	.0513
(Constant)	-2.247810	2.815939		-.798	.4259

2. Second equation: Dependent variable.. LNSUB

Multiple R	.87210
R Square	.76055
Adjusted R Square	.74568
Standard Error	.99424

Analysis of Variance:

	DF	Sum of Squares	Mean Square
Regression	10	505.50147	50.550147
Residuals	161	159.14931	.988505

F = 51.13798 Signif F = .0000

----- Variables in the Equation -----

Variable	B	SE B	Beta	T	Sig T
TOTAC	.119017	.015833	.635055	7.517	.0000
HH	1.09141317E-05	1.4304E-06	.368680	7.630	.0000
AGEHE	.024803	.011053	.090043	2.244	.0262
INCOME	8.93849803E-06	1.1141E-05	.051843	.802	.4236
URBAN	.005738	.002416	.111607	2.375	.0187
LOCAL	.086765	.032837	.135481	2.642	.0090
AGE50	-.033560	.016340	-.123384	-2.054	.0416
EDU_COL	.008533	.011322	.043543	.754	.4521
CHILD	.013510	.008425	.066048	1.604	.1108
HHSIZE	.975864	.428944	.132736	2.275	.0242
(Constant)	6.702475	1.639392		4.088	.0001

The model overall predicted 72% of the variation in the dependent variable TOTAC and 75% of LNSUB. Overall, the explanatory power of the model seems satisfactory. As expected, channel diversity of a cable television system is determined by factors affecting cost of running a system and revenue potential of the system area. Characteristics of local system area determines substantial proportion of variation of channel diversity.

Among market characteristics, housing density and the number of local broadcast stations in the area were the most significant factors affecting TOTAC. Density had positive impact on TOTAC as expected. Income had positive influence on TOTAC, but it was not statistically significant. Income was not a significant factor for the demand level (LNSUB) either. URBAN and AVGWAGE variables were not significant at all in regards to TOTAC. However, urban dwellers were more likely to be cable subscribers.

The number of broadcast signals in the area also had positive impact. The strength of competition must be prompting local cable operators to improve on the quality of their service. This positive impact of the number of local broadcast signals on cable diversity seems to come from two reasons. A cable operator might have an incentive to increase channel diversity if its competition (in this case, over-the-air broadcast signals available) is stronger and thus higher quality service is necessary to get people to subscribe to cable. Also, it is likely that a cable system's channel line-up includes more broadcast channels as there are more local broadcast channels available in the area. Unfortunately, we cannot separate out the two types of effect with the data at hand.

Ownership related characteristics of the system - i.e. the extent to which the system is vertically integrated with programming networks (VI) which is also highly correlated with the size of the MSO - had positive influence on TOTAC although p-value was not as high as expected. Efficiencies realized from vertical integration and bargaining power advantage vis-a-vis program suppliers seem to positively work for channel diversity. It might have even bigger influence in which network gets to be selected in the system menu. An integrated system will be more likely to include affiliated network with all other things equal.

Channel capacity was the most influential variable determining channel diversity with the highest beta coefficient. Approximately four additional channel capacity increases one more programmed channel. The influence of it was bigger than that of subscriber base.

23 out of total 244 systems in the data set had same channel capacity and total number of programming. Upgrading channel capacity requires substantial financial commitment and also time. For those 23 cases, it can be either channel capacity (smaller than necessary) constraining optimal TOTAC or optimal TOTAC happens to be exactly same with the channel capacity the system has. Those 23 systems were removed from the data set and the same

equation was measured. The regression result was pretty much the same and channel capacity, followed by subscriber base, was the strongest predictor of TOTAC.

Future growth potential of the system area was represented by projected population growth and average retail growth rate in the original model. Projected population growth rate was not a significant factor. Retail sales growth rate had a positive relationship to the total number of channels carried and was significant at .05 level. As of 1990, advertising revenue only consists of 4% of cable system revenue, but is projected to increase in the future. (Sherman, 1994) If local advertising becomes a more common industry wide practice, the influence of it on channel diversity might go up in the future. As the contribution of local advertising revenue to the cable system's total revenue gets larger, the influence of local advertising market potential on diversity will increase.

Among demographic variables, age variable and household size were statistically significant factors influencing the demand for cable television. The more there are older people in the area, the lower the subscription to the cable television. The result was consistent with the previous research. On the contrary, household size had significantly negative impact on the demand for cable television, which was the opposite of the previous research. Income and education were not significant factors. This seemingly inconsistent result suggests the weakness demographic characteristics as reliable predictors of cable television demand. Sparkes & Kang (1986) noted that as cable television changes from novelty to more widespread medium the demographic differences between subscribers and non-subscribers tended to disappear over time. Greenberg, et al (1988) also noted that as penetration changes, subscriber profiles are different in a system's life cycle. LaRosce & Atkin (1988) found that the influence of service and satisfaction was far more explanatory than traditional demographic or media-market variables.

The quality of service measured by the number of programming networks carried by the system was by far the strongest predictor of the demand for cable television. Based on beta coefficient, it was even stronger than the explanatory power of III (total number of households in the system area).

System age had positive impact on the number of subscribers as expected. Urban population seems to have higher demand for cable television. The number of local broadcast stations had negative impact on the demand for cable. Broadcast television is sure to be a substitute for cable television, at least as of this time.

TOTAC and LNSUB had mutually positive influence to each other. In addition, both factors were very strong predictors for each other. The influence of subscriber base on channel diversity is statistically significant (p value of t statistic: .01). A system has more programmed channels (higher diversity) when it serves higher number of subscribers. With approximately 1.61% increase of the number of subscribers, one more programmed channel is added to the system. It means that as we move from a small system to a larger system more and more subscribers are needed to increase channel diversity. After beyond a certain level of subscriber base, the increase of channel diversity becomes stagnant. Since this is a simultaneous equation model, the variables such as system age, and age of the population which seemingly affect subscribership also exert influence on total number of channels programmed indirectly through increasing or decreasing subscribership.

Also, the influence of TOTAC on subscriber size is statistically significant and positive. The relationship holds with all other factors, local market and system characteristics, held constant. Approximately 10-programmed channel increase brings 1% increase in the subscribership. TOTAC was the strongest predictor for the subscription rate.

The channel diversity offered by the system is only one of many quality factors considered by viewers at the moment of decision to subscribe. Overall quality of operating service provided to subscribers such as responsive service personnel, prompt phone answering, appropriate dealing of complaint and convenient billing, which was not included in the model, might explain some of the unexplained variation.

The relationship between system size and channel diversity was positive and mutually reinforcing. The larger the system is, the higher the diversity level is. Higher diversity, in turn, results in higher subscription. However, the effect of subscriber base tapered off as we move to a larger sized systems. The effect of channel capacity was also strong and positive, which holds true after holding all other factors constant.

VII. Discussion and future research

This study revealed that the same economic force that governed quality of other media product is also at work for determining cable channel diversity. A system serving larger market in terms of subscriber base offers higher quality service, in this case higher channel diversity, to its subscribers. The same force works in newspaper industry. Big city newspapers have more diverse sections than suburban papers. The same is for international trade of motion pictures; Countries with larger domestic market produce and export films with more diverse subjects (Wildman & Siwek, 1988). TV programs with higher expected audience have higher production budget to improve on quality than the others (for example, network program vs local broadcast station production).

Channel capacity puts apparent limit to the channel diversity. But systems with larger subscriber base offered higher level of diversity even after controlling for the channel capacity and many other variables.

Technological advance which abolishes physical channel capacity limit will not bring about drastic increase in diversity; at least by itself. Economic constraints on diversity, local market characteristics and subscriber base as presented in this model, will remain the same in the '500-channel world'.

It seems that how we divide areas served by a multichannel service provider matters much in determining channel diversity as it is defined in this study. However, since this study did not extend to study the composition of programming line up in the systems whether having a large service area is always better or not cannot be answered. Traditional policy goals such as localism might not be better served by assigning large system areas. Study of the determinants of system programming composition, that is what determines the selection of particular set of networks in a system, should be followed as a future research.

The notion of competition should be reconsidered. There can be conflicting arguments. General economic theories on competition hold that competition is much better for improving product quality and tuning to consumer needs. On the other hand, competition reduces rate of return for the producers by dividing the market. Based on the result of this study, that is subscriber base being a strong determinant for channel diversity, competition in the same system area might not be always better for channel diversity since competing multichannel service providers are bound to divide up the subscriber base of the given area. The result cannot be conclusive since the data consist of non-competitive systems only. A follow-up study including competitive systems will be conducted. A variable indicating the strength of overbuild competition such as the proportion of household passed which is also passed by any

competitor in the system area can be included in the model and the effect of multichannel competition can be measured.

Overall, demographic variables were not so strong predictors of channel diversity. Probably demographic variables exert stronger influence over which network to pick rather than how many network to carry. It should be also the subject for future research.

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**Marketing Cable Television: Programming and Interactive Service
Preferences of Cable Subscribers**

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Abstract

Programming is arguably the most significant characteristic of cable television service. Over 600 subscribers to system in a Northeastern city were surveyed to assess their preferences for programming types and interest in interactive services. Subscriber sentiment to add science, nature, and cultural programming was strong, as was the desire to reduce the number of shopping, religious, and pay-per-view channels. Interest in the interactive services was weak. Implications for cable system operators are discussed.

**Marketing Cable Television: Programming and Interactive Service
Preferences of Cable Subscribers**

Cable programming has long been recognized as significant to the success of cable service in the consumer marketplace. Among the earliest cable subscribers, who often lived in communities where reception was impaired, the primary motivation for subscribing was the improvement in picture quality (Baldwin & McVoy, 1988). However, research suggests that by the early 1980s the need for better reception was supplanted by the desire for more channels and a greater variety of programming. For example, Metzger (1983) found in a national study of cable subscribers that 41% subscribed for greater program variety and quality compared with 34% who sought better reception. Metzger also found basic only subscribers were more likely to subscribe for better reception while premium service subscribers were more likely to subscribe for program variety. Similarly, Rothe, Harvey, and Michael (1983) studied cable subscribers to a large system in one of the top 10 U.S. media markets and found the desire for more movies and more channels, as well as variety were the most important decision factors in choosing to subscribe. The results of more recent studies (e.g., Umphrey, 1989; Atkin, 1992) suggest these findings as still true today.

The desire for more program variety is not only important in the initial decision to subscribe to cable service. Consumer behavior researchers have developed a disconfirmation model of satisfaction formation that suggests consumer satisfaction is an important antecedent of product repurchase decisions (Hunt, 1977; Oliver, 1980; Churchill & Suprenant, 1982). Following from this model, cable television program variety and quality may play a role in subscribers' satisfaction formation which is, consequently, an important antecedent of the subscription maintenance decisions. Given the importance subscribers' place on the increased variety cable offers, subscribers' negative perceptions of the variety offered by their cable operator (i.e., number of channels and diversity of program types) would likely affect their satisfaction with their service and subscription maintenance decisions. Research conducted to test this hypothesis is limited and the results mixed. For example, while LaRose and Atkin (1988) failed to find a relationship between program satisfaction and subscribers' intention to disconnect, Jacobs' (in press) study of cable

subscriber satisfaction revealed that program variety, and for some demographic segments program quality, are determinants of subscriber satisfaction.

Still, in today's changing telecommunications environment all cable system operators recognize the importance of subscriber satisfaction. As local cable system operators experience increased competition from cable system overbuilds, telephone companies, and direct broadcast satellite systems programming will grow in importance (Bürge, 1995). The unique programming on cable television has been shown to add to the perceived value of television consumption for cable subscribers (Albarran & Umphrey, 1994). Similarly, the programming offered by a cable system operator will be an increasingly significant factor in system operators' efforts to differentiate themselves from competitors by adding value to their service.

As channel capacity grows system operators will be challenged to buy and create programming and interactive services that meet the needs and expectations of subscribers. The solution, however, is not simply adding programming unselectively, as capacity becomes available. Research has shown that television viewers whose needs are being met by broadcast offerings find no reason to subscribe to cable service (Becker, Dunwoody, & Rafaelli, 1983). New channels added indiscriminately may fail to meet the needs of subscribers and attract buyers. Therefore, general managers and marketing managers need to explore subscribers' preferences for future programming and services. System operators need to listen to the voice of the consumer and use consumer feedback to shape what the menu of services will look like. This will allow system operators to make better programming decisions up front, saving the expense of replacing a network or interactive service that proves unpopular (and unprofitable). In the same way that program audience ratings for demographic subgroups enable advertisers to target their audiences, analysis of preference data by demographic subgroups will assist system operators in marketing programming and services in packages, tiers, or as à la carte offerings to target demographic subgroups.

While some cable operators are undoubtedly actively researching consumer interest in newly available cable programming and interactive services, relatively little academic or market

research data has been reported in the public domain. In searching for research on cable subscribers' programming preferences for this study, just two reports were found in the trade press. Tele-Communications Inc.'s tv! Network, which carries programming from about 20 different existing and aspiring cable networks, recently began soliciting viewer feedback to new programming concepts via an 800 number (Katz, 1995). Obviously, this type of research design does not provide representative data. Nevertheless, so far the Outdoor Motorsports Channel and The Military channel have received generally favorable ratings but Bloomberg Business News fared poorly with 84% of callers indicating the programming was not very good and 88% saying they did not want the service as a 24-hour channel. The Ecology Channel's quality ratings were mixed. And in a related market study, Beta Research Corp. conducted a national survey of cable operators to determine the cable networks they were most interested in adding to their offerings by the end of 1995 (Granger, 1995). The channels general managers were most interested in adding are the Sci-Fi Channel, History Channel, ESPN2, Learning Channel, Cartoon Channel, and Court TV.

Some research has also been reported about consumer interest in interactive services. Over a decade ago, Rothe, Harvey, and Michael (1983) queried cable subscribers about their interest in a range of interactive services. Forty one percent reported they were very interested in news/weather/sports on request and 39% were very interested in home security. Only 25% were interested in home banking, 18% in home shopping, and 17% in financial information. The authors concluded that consumers generally lacked awareness of these services and a recent market study suggests not much has changed since the early 1980s. A telephone survey of 1,000 adults conducted by Lou Harris and Associates for Privacy & American Business, a nonprofit journal, indicates that consumers may be less interested in home shopping and movies-on-demand than service providers expect (Ziegler, 1994). Just 40% of respondents expressed interest in ordering sports programs or movies-on-demand, and only about a third said they want interactive shopping. Nearly 75% of consumers surveyed were interested in customized news reports and 63% were interested in health-care, government, and product review information services. A spokesperson

for Lou Harris suggested that these findings should be interpreted with care since many of the consumers surveyed apparently had limited knowledge of interactive services.

The present study, based on a survey of cable subscribers to a single system in a top 25 cable market, addresses three research questions: What are cable television subscribers' preferences for programming additions? How interested are cable subscribers in interactive services? What relationships exist between subscriber demographics and interest in cable programming types and interactive services?

Method

The data reported here were collected as part of a survey of subscribers to a large cable system in a medium size city in the Northeast. Data were gathered in telephone interviews conducted between July 18 and July 31, 1994 by trained communication graduate students.

A systematic random sample of telephone numbers was drawn from the system's database of current subscribers. A minimum of two attempts were made to contact busy, no answer, and machine answered numbers. Out of 894 valid attempts (excluding business numbers, no answers, and disconnects) there were 607 completed interviews and 287 refusals for a response rate of 68% (Frey, 1989). The respondents were 41% male and generally middle-aged with 45% between 35 and 54 years of age. Thirty percent were over 55 years old. The sample was relatively affluent with 30% earning between \$50,000 and \$74,999 and nearly 25% earning \$75,000 or more. Almost 50% had earned a college degree or higher. The average household size was 2.72 persons and 47% of the households had three or more members. Among the respondents, 30% subscribed to one or more premium (pay) channels.

The survey instrument was designed to gather data on subscribers' programming and service expectations. Subscribers' programming preferences were measured by asking them to indicate for a comprehensive list of 15 channel types if they would like more, the same amount, or fewer channels of that type (1=fewer channels, 2=same amount, 3=more channels). The descriptions of channel types included an existing cable network example for each (e.g., "Sports

channels like ESPN"). The channel types are listed in Figure 1. Interest in new, interactive services was assessed by asking respondents to indicate for eight service concept statements how interested they would be in receiving each service through their cable company (1=not at all interested, 2=not very interested, 3=somewhat interested, 4=very interested). For example, the concept statement for home banking read, "Home banking which would allow you to review your accounts and make transactions." The eight services are listed in Figure 2. The demographic data, summarized above, were collected to allow for more in-depth analysis. Ordinal scales were used to measure education (1=did not graduate from high school, 2=graduated from high school, 3=some college, 4=graduated college, 5=some postgraduate work, 6=earned postgraduate degree), household income (1=less than \$10,000, 2=\$10,000 to \$19,999, 3=\$20,000 to \$34,999, 4=\$35,000 to \$49,999, 5=\$50,000 to \$74,999, 6=\$75,000 to \$99,999, 7=\$100,000 to \$124,999, 8=\$125,000 or above), and age (1=18 to 24, 2=25 to 34, 3=35 to 44, 4=45 to 54, 5=55 to 64, 6=65 and older). Household size was recorded as reported by the subscriber and gender was noted by the telephone interviewer. Each subscriber's service level (1=basic only, 2=basic plus premium) was also recorded from cable system records.

The data were tabulated and analyzed using SPSS^x (Norusis, 1990). The analysis began with total sample frequency distributions for each item of interest. Then, to locate differences in program preference and interactive service interest among demographic and service level subgroups, a series of cross-tabulations and chi-square tests of association were computed.

Results

Programming Preferences

When given the opportunity to express their desire for more or fewer channels of the different programming types on their cable system, subscribers were to some extent apathetic. For most of the channel types--pay-per-view, premium, sports, news, music, children's, business, women's, and foreign language--between about 45% and 55% of the subscribers indicated the status quo (the same amount) was preferred. Still, as shown in Figure 1, subscribers do hold

strong programming preferences. There appears to be strong demand for additional science, nature, and cultural programming. Between 33% and 40% of subscribers would also like to see additional children's, news, sports, and women's channels. Conversely, subscriber sentiment to reduce the number of shopping, religious, and pay-per-view channels is strong. Moreover, about a third of the respondents would like to see the number of foreign language and music channels reduced.

Figure 1 about here

The chi-square analysis of channel type preferences by subscriber demographics and service level reveal the existence of some relationships between these variables. To aid in the interpretation of the cross-tabulations the age, income, education, and household size data were collapsed for the analysis into a reduced number of levels. "Same amount" responses were removed from the analysis as well. The following descriptive groupings facilitate the reporting of the significant findings.

Gender driven preferences. Not surprisingly, subscribers most interested in more sports and women's channels are men and women, respectively. Only 50% of women want more sports channels while 84% of men do ($X^2=40.99$, d.f.=1, $p<.001$). Similarly, 86% of women want additional women's channels compared with 57% of men ($X^2=26.71$, d.f.=1, $p<.001$). And both men and women would like more cultural programming but the proportion of women expressing this desire (95%) significantly exceeds the 86% of men ($X^2=8.90$, d.f.=1, $p<.01$).

Age driven preferences. Desire for additional music and public affairs programming is related to subscriber age. Younger subscribers are more interested in additional music channels than older subscribers ($X^2=20.69$, d.f.=2, $p<.001$). Conversely, older subscribers are more likely to request additional public affairs programming than younger subscribers ($X^2=20.40$, d.f.=2, $p<.001$).

Income driven preferences. Preferences for religious and women's programming appear to vary with income. Higher income subscribers are less likely to want more religion channels than

lower income subscribers ($X^2=11.06$, d.f.=3, $p<.01$). A similar association was found regarding women's channels ($X^2=10.52$, d.f.=3, $p<.05$).

Education driven preferences. Subscriber education was associated with just one type of program preference--business. Better educated subscribers are more likely to be interested in additional business and finance channels like CNBC than lesser educated subscribers ($X^2=15.18$, d.f.=3, $p<.01$).

In some instances, more than one variable emerged as associated with a programming preference. For example, preferences for additional pay-per-view and premium channels vary with subscribers' age and level of service. Desire for more pay-per-view channels increases with subscription level ($X^2=7.93$, d.f.=1, $p<.01$) and decreases with age ($X^2=9.36$, d.f.=2, $p<.01$). The same is true for premium channels. Subscribers are far more likely to be interested in additional premium channels if they already subscribe to them ($X^2=47.39$, d.f.=1, $p<.001$) and if they are younger ($X^2=16.57$, d.f.=2, $p<.001$). These subscribers may be best characterized as "youthful adopters." Another example is children's programming which is more likely to be favored by "young householders." Subscribers who are younger are far more likely to want additional children's programming than older subscribers ($X^2=34.30$, d.f.=2, $p<.001$); subscribers with larger households are far more likely to want additional children's programming than subscribers with smaller households ($X^2=30.27$, d.f.=3, $p<.001$).

No significant demographic or subscription level differences were found in program type preferences for news, shopping, education, and foreign language channels.

Figure 2 about here

Interest in Interactive Services

Subscribers interest in obtaining interactive services from their cable company appears to be limited at this time. As indicated in Figure 2, only two services--movies on demand and interactive news--attracted appreciable subscriber interest and even those services elicited "very interested"

responses from under 50% of respondents. Still, these services look promising when compared with the less than 20% of subscribers who indicated they were very interested in any of the other six concepts tested. The number of subscribers somewhat interested in these services could be interpreted as encouraging, but those responses suggest much greater consumer uncertainty.

The chi-square analysis of interest in interactive services by subscriber demographics and service level suggest some interesting associations among these variables. The most important result was the consistently significant association between subscriber age and interest across all of the interactive services described ($p < .001$). The younger the subscriber the more likely s/he is to be interested in receiving the service from their cable company. Except for local telephone service, in addition to age, other differences were found across demographic subgroups of subscribers.

Home banking is favored by subscribers who are better educated ($X^2 = 12.30$, d.f.=3, $p < .01$), have higher incomes ($X^2 = 11.21$, d.f.=3, $p < .01$), and live in larger households ($X^2 = 11.63$, d.f.=3, $p < .01$). Interest in catalog shopping is significantly greater for women subscribers ($X^2 = 5.46$, d.f.=1, $p < .05$) with higher incomes ($X^2 = 12.15$, d.f.=3, $p < .01$). Interest in home security is related only to subscribers' current level of service. Premium subscribers are more likely to be interested in security service than basic only subscribers ($X^2 = 5.19$, d.f.=1, $p < .05$). Interactive news is also related only to subscribers' level of service. Again, premium subscribers are more likely to be interested in interactive news than basic only subscribers ($X^2 = 4.67$, d.f.=1, $p < .05$). Not surprisingly, movies on demand appeal to premium channel subscribers ($X^2 = 5.25$, d.f.=1, $p < .05$) and to the better educated ($X^2 = 11.78$, d.f.=3, $p < .01$). Interest in video games is much greater for subscribers from larger households ($X^2 = 24.26$, d.f.=3, $p < .001$) with premium service ($X^2 = 18.89$, d.f.=1, $p < .001$). And, interest in supermarket shopping is greater for women ($X^2 = 13.55$, d.f.=1, $p < .001$) from larger households ($X^2 = 7.90$, d.f.=3, $p < .05$).

Discussion

With cable system channel capacity increasing (Granger, 1995) and the number of cable networks currently available and in the planning stages exceeding 100 (National Cable Television Association, 1994), the planning and implementation of programming and interactive service strategies is becoming increasingly difficult. An equally great challenge will be marketing a menu of programming and services in a competitive environment. Perhaps the best way to simplify these tasks is to solicit subscriber input in the process.

In addressing the research questions posed in this study, these results suggest a number of important implications for cable system operators. First, let the cable subscriber assist in shaping the programming menu. Subscribers to this system often opted against suggesting to increase or decrease the number of channels of a particular type. This is not too dissimilar to being asked by a restaurant what items should be dropped from their menu and what new dishes should be added. When going to a restaurant most diners do not want to do the chef's job; they want to be offered a range of items several of which could suit their appetite. Nevertheless, most diners could tell you if they want more seafood dishes or less red meat. Here, there was ample support for adding more science/nature, educational, and cultural channels and reducing the number of shopping, religion, and pay-per-view options. It is also interesting to note that there was limited subscriber support for additional premium channels. While about 30% of subscribers take premium service, less than 15% of respondents indicated a desire for more premium options. Apparently, even those subscribers who are drawn to these premium channels feel there is enough of a selection.

Since the evidence of consumer demand for interactive services is limited and contradictory (Ziegler, 1994), these data suggest system operators should proceed cautiously in the introduction of interactive services. With the exception of movies on demand, which is simply an evolutionary step forward from pay-per-view, and interactive news, which many subscribers are likely familiar with from hearing about or using on-line computer services, interest in the less familiar services is clearly limited and weak. Moreover, these responses merely addressed concepts; there was no mention of cost and a recent national random survey of over 1,000 households by Hewlett-Packard

Co. suggests consumers are unwilling to pay any more for interactive services than they currently pay for cable alone (Ziegler, 1994).

Consumers' willingness to adopt interactive services was tested in the videotex trials of the early 1980s and little interest was cultivated (Baldwin & McVoy, 1988). The finding that younger subscribers are more interested in interactive services is, reassuringly, consistent with much of the research on the diffusion of innovations (Rogers, 1983). Still, cable operators need to recognize these services as innovations that must possess certain attributes that are perceived favorably before subscribers will adopt. Research conducted on one early videotex service found that perceptions of the relative advantage of the innovation (the degree to which the innovation is better than the idea or practice it replaces), and its compatibility with existing values and past experiences, are of greatest importance when introducing interactive services (Bolton, 1983). Soliciting subscriber responses to interactive service concept statements is obviously not sufficient to gauge their intentions regarding these services. Clearly, more in-depth research on subscribers' perceptions of interactive services is needed.

As for marketing cable television service in a competitive environment, these findings allow system operators to understand consumer wants and indicate targeted marketing has value in selling cable programming and services. Like cable audience ratings used by advertisers to locate programming through which to reach their target consumers, system operators can use preference research to identify the types of programming desired by subscribers. This will allow operators to more effectively tailor and selectively promote their offerings to target groups such as men, women, and young families. This will become even more important in future cable environments that offer over 100 channels. How will consumers know what channels or services they prefer? How will a subscriber know what's available and make an à la carte selection without information? And how can system operators efficiently increase the buy rate for new programming tiers and packages? Only extensive, ongoing local research will enable system operators to avoid costly programming and marketing errors.

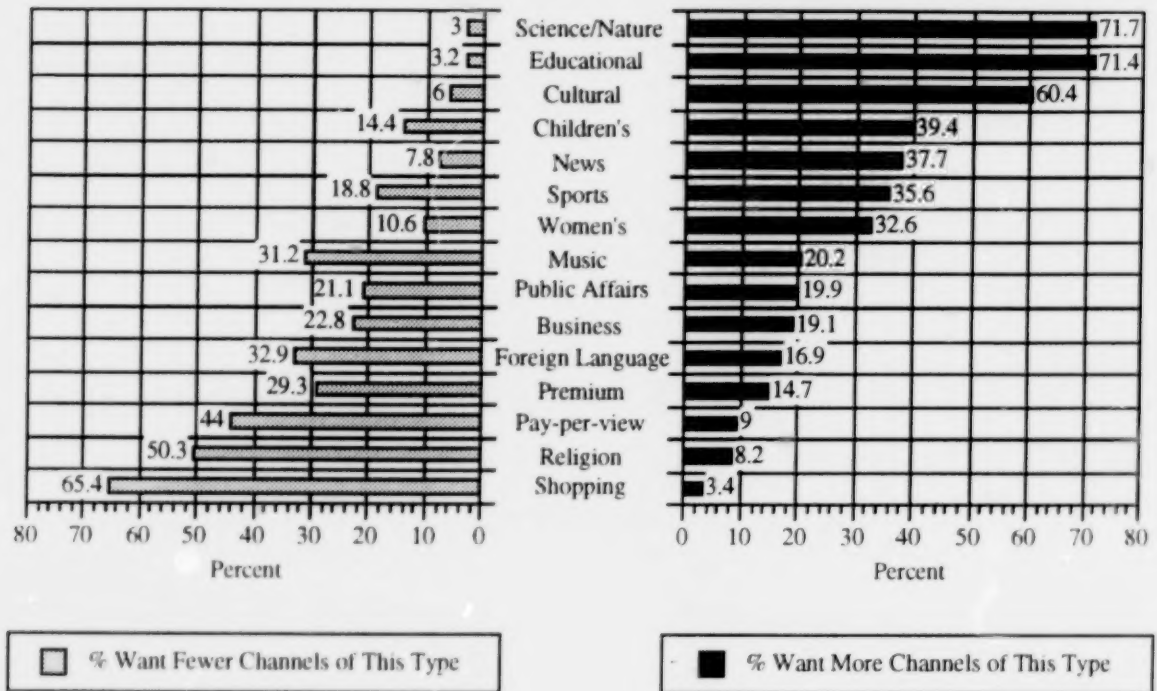
This study is limited in that it was conducted among subscribers to just one system in a single market. Thus, these findings may not be generalizable beyond the sampled subscriber population. Nevertheless, the findings begin to suggest how programming preferences vary across subscriber characteristics and how limited subscriber interest in interactive services is at this point in time.

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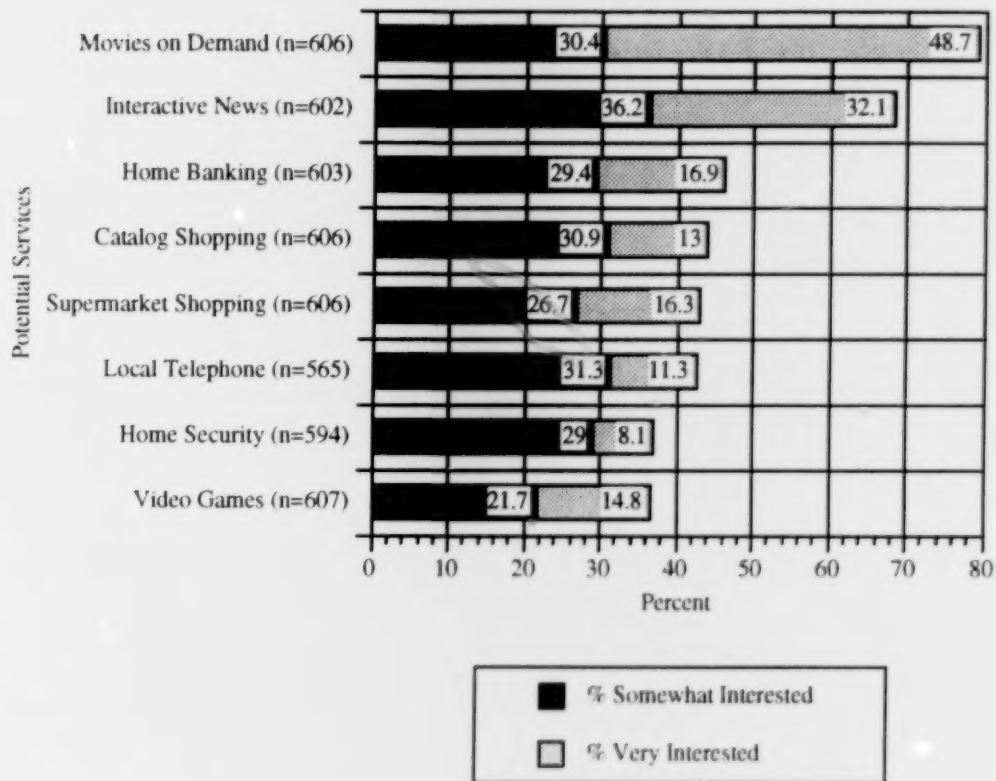
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Figure 1: Subscriber Preferences for Types of Cable Channels



Note: The number of respondents for each statement varies from a low of n=544 for foreign language to a high of n=607 for premium due to "don't know" responses allowed.

Figure 2: Subscriber Interest in New Cable Services



A STUDY OF RADIO STATION MANAGERS' ATTITUDES ON
STATION FORMAT CHANGES

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RUNNING HEAD: RADIO FORMAT CHANGES

ABSTRACT

A STUDY OF RADIO STATION MANAGERS' ATTITUDES
ON STATION FORMAT CHANGES

The radio industry currently operates in a different environment from the pre-1980s period. The drive for deregulation led to changes in the types of management and in the competitive environment. This study examines the dynamics of change management and radio station format changes. Force field theory was used as the theoretical underpinning for exploring the dynamics of radio station format changes. Personal interviews and a survey questionnaire were the methodologies used for this study.

A STUDY OF RADIO STATION MANAGERS' ATTITUDES ON STATION FORMAT CHANGES

The radio industry has been operating under a regulatory atmosphere since its inception over 70 years ago. Broadcast regulation originated with the Wireless Act of 1910 and the Radio Act of 1912 (Head, Sterling, and Schofield, 1994, 156). The Radio Act of 1927 and the Communications Act of 1934 were enacted to establish that the airwaves resource be used as a public trust and not as private property. Licenses were issued to those who made a commitment to operate and use this scarce resource in the public interest. The trusteeship approach to broadcast regulation was established with this legislation. This trusteeship model would last until the deregulation of the early 1980s (Simmons, 1978, 27).

Today, the radio industry operates in a different environment from the pre-1980s period. The deregulation of the 1980s brought about tremendous change for station managers. Deregulation included changes in the number of stations owned, the length of time of ownership, and the addition of new radio stations. The drive for deregulation led to changes in the types of ownership, the type of management, the number of radio stations, and the competitive environment (Anderton and Sanders, 1992, 6).

One result of these changes is that radio station managers operated in increasingly competitive conditions. To survive, radio managers needed to incorporate change as an integral part of the operations of their organizations. Fierce competition for listeners and advertising revenue resulted in the need for radio managers to adapt and change as their environments changed.

Change certainly is not limited to the broadcasting industry. Many companies have experienced change in today's business world. Buzzwords such as reinventing, restructuring, and reengineering have been used to describe businesses' response to change. Academicians and professionals have observed not only that businesses need to change and adapt to new environments, but also that these businesses need to incorporate change as a fundamental part of their organizations. Radio station managers' attitudes toward programming change is the focus of this study (Byrne, 1992, 62).

LITERATURE REVIEW

Radio station format changes and change management were the main topics of this research. This section contains a review of the literature pertaining to these topics. It begins with an overview of the development and changes in radio programming and formats. A review of the definitions and types of change are then presented. Concluding this section is a discussion of change management.

Radio Station Programming

The terms programming and formats are often used interchangeably in describing a radio station's over-the-air product. O'Donnell, Hausman, and Benoit define programming as "the placement of elements within the broadcast day" of a radio station. They define format as that which "pertains to the entire overall strategy of the station" (O'Donnell, Hausman, and Benoit, 1989, 73).

Radio's programming 50 years ago was similar to television programming today. No one in the 1920s, 1930s, 1940s or early 1950s had a favorite radio station (N. Anthony, personal communication, March 20, 1993). What people did have were favorite programs. People would choose to listen to comedies, dramas, mysteries, quiz shows, and musical programs on various radio stations. In this type of radio programming, commonly called block programming, the radio station used, for example, a comedy show for one two-hour block, then would air either dramas, variety shows or musical shows for the next hour or two. For their programming, most of the stations relied on radio networks for delivery of these shows. Some independent stations would program using local talent and have studio orchestras for local shows (Keith, 1987, 1-2). In the 1950s radio faced an unpleasant reality as television emerged and began offering the same type of programming. In fact, many of the shows previously on radio had moved to television, and so had the audience and advertisers. Radio networks' loss to television of national advertising caused them to cut back programming offered to affiliate stations. With their listenership declining, local radio stations started to play

more and more records as an inexpensive alternative to producing their own shows (Vivian, 1991, 185). As a result, block programming, which depended on the radio networks, was abandoned as a strategy for radio (Keith, 1987, 2).

At the time of the emergence of television, rock'n'roll also established itself in the field of music. Hit playlists of record stores were being dominated by the new music (Keith, 1987, 2-3). Some radio stations started airing this new form of pop music. Anthony reported that during this period the "all format" made its appearance in radio. Radio would play one type of music, for example, top 40 or country, all day instead of using block programming. In his book, Keith observed that a new period had begun for radio:

It was the dawning of a new era, of program specialization and selectivity. Radio broadcasters began to narrow their programming to gain a share of the listening audience that would generate advertiser interest. The day when radio stations could successfully broadcast in a random fashion was coming to a close for all but a few stations (Keith, 1987, 2).

The first format to appear was a form of hit rock 'n' roll music called top 40. The term was created in reference to the airing of the top 40 favorite songs as determined by record sales. Keith identified broadcasters Todd Storz and Gordon McLendon as the young program innovators of this format. This format had a pre-determined recipe for what music was aired and mixed together. "No other format at the time adhered so closely to a formula," Keith noted. Eventually Country, Beautiful Music and Middle-of-the-Road formats would create niches for themselves among listeners. Block programming stations were becoming extinct. The medium of radio was emerging from the 1950s with even greater strength (Keith, 1987, 2-3).

Competition grew as more licenses were issued by the FCC. While the number of AM station licenses continued to increase during the 1960s, FM lagged behind. Up to this point, FM had been considered the alternative band. According to Keith, AM owners treated their FM stations as weak step sisters. Despite its superior stereo quality, FM was largely ignored during this time. One reason was that very few people had

FM receivers. Also, FM was associated with the highbrow culture. It was described by some as the egghead band, radio for the cultured. Hence, most broadcasters and listeners focused on AM and left FM in limbo (Keith, 1987, 3-4).

In 1965, the FCC ruled that AM/FM stations could no longer simultaneously broadcast the same programming. Prior to this, a number of AM stations had broadcast the same programming on their FM stations. The FCC considered this an inefficient use of broadcast frequencies. This ruling initially applied to cities with populations of 100,000 or more. Thereafter, FM started to attract a listenership with its own programming (Keith, 1987, 4).

However, AM enjoyed tremendous success during the 1960s and early 1970s. It was not unusual for an AM station to air 18 to 20 minutes of commercial time per hour. In fact, to squeeze more commercials into a hour, AM operators were playing 45 rpm records at 47 or 48 rpm to shorten the music. Having few listeners, FM could not sell its commercial inventory and thus had few commercials. By the mid-1960s, people began to listen to FM because of its limited number of commercials, no-talk policy, and stereo quality (N. Anthony, personal communication, March 20, 1993). By the late 1960s and early 1970s, FM started to achieve listenership ratings that attracted the attention of station managers and advertisers (Keith, 1987, 4).

FM listenership continued to grow in the 1970s. FM ceased to be the weak step sister. In 1978, for the first time, it attracted 51 percent of the radio listening audience. By the mid-1980s, FM would leave AM far behind with 70 to 75 percent of the listeners. Today FM radio garners 90 percent of the radio listeners (N. Anthony, personal communication, March 20, 1993).

In the 1970s, undeveloped FM stations were bought and moved closer to major markets to capitalize on growing revenue possibilities. A 1961 FCC ruling had provided operators considerable flexibility in moving transmitter sites. However, the strict administration of FCC rules kept the pace of station development slow. Then, in 1984, the FCC introduced Docket 80-90, which allocated new FM channels and

issued new rules allowing "greater flexibility to alter existing FM technical facilities to penetrate larger nearby markets" (Anderton and Sanders, 1992, 5). Docket 80-90 also included a use-it-or-lose-it provision. FM stations not operating at full power for their class were given three years to build up to minimum levels or be permanently downgraded. This provision, along with the rest of Docket 80-90, changed the FM environment. FM's growing audience and revenue potential, coupled with the use-it-or-lose-it directive, further fueled FM station expansion (Anderton and Sanders, 1992, 5).

Radio programming in the late 1970s and early 1980s focused on creating smaller niches in the audience market. This occurred in markets where radio stations encountered competition from other stations. Stations started to narrow the focus of the music to reach a specific listener target. For example, now there were three different Adult Contemporary (AC) formats. One station would have Soft AC, another a Hot AC, and another a Middle-of-the-Road AC, splitting three ways what had been the broad Adult Contemporary listenership (N. Anthony, personal communication, March 20, 1993).

It was during the 1980s that the demise of the trusteeship approach to broadcasting occurred. The deregulation environment of broadcasting started this process. Docket 80-90, which added new FM frequencies, was just one part of it. The early 1980s brought about a different concept of the public interest. Government regulators now viewed licensees as marketplace participants rather than holders of a public trust. The marketplace approach is based upon the view that, in order to profit, entrepreneurs must provide to consumers goods of value and utility. This entrusts the entrepreneur to maximize fulfillment of societal needs. As Zaragoza states, the entrepreneur is:

led by an invisible hand to promote an end which was no part of his intention but which, in the course of pursuing this own interest[.]...frequently promotes that of the society more effectively than when he really intends to promote it (Zaragoza, Bodorff and Emord, 1988, 30).

Those who advocate the marketplace approach stated that the trusteeship model prevents the broadcast

spectrum from reaching its best and highest use, which can be only achieved through competition (Zaragoza et al. 31).

J. T. Anderton noted in his book, LMA Handbook, that operators in the early 1980s developed stations in markets with few or no stations and showed huge profit margins quickly. The financial community was impressed. The buying and selling of stations accelerated during the 1980s as more money was invested.

Station prices were based on very high multiples of cash flow and the assumption that advertising revenues would continue to grow as they always had. Thus stations were bought and sold on their business potential. Many stations were heavily leveraged to fund and capitalize acquisition and development creating heavy debt burdens (Anderton and Sanders, 1992, 5-7). Thus, in the late 1980s, as new station owners had to pay this debt and interest, they faced more competition with much greater financial pressures than heretofore experienced.

For example, where a \$4 million radio advertising market once had four stations receiving \$1 million each, there now might be eight stations obtaining \$500,000 of the radio pie. According to Anthony, 55 percent of the radio stations lost money in 1992. Many markets were saturated by radio signals and formats, and numerous stations were heavily in debt. Advertising revenues remained static and actually decreased slightly in the early 1990s (N. Anthony, personal communication, September 14, 1993).

An option that radio station managers are choosing to make their stations more competitive and profitable is to change format. According to Robert Unmacht, editor of the M Street Journal, 40 to 45 format changes by radio stations nationwide are tracked in his newsletter each week (R. Unmacht, personal communication, December 14, 1993). This means that between 2,080 to 2,340 radio stations, approximately 23 percent of the 10,022 commercial radio stations in 1995, switch formats annually (Broadcasting & Cable, 1995, 46).

Rooster Rhodes, Operations Manager and Program Director of KCAQ-FM, Oxnard, California,

indicated in a interview that a format change by a competitor might lead another station to switch its format (R. Rhodes, personal communication, April 1, 1994). Long-time broadcaster Kim Colebrook said "movement by someone else," in other words, a format change by a competitor, might lead a station to change its format (K. Colebrook, personal communication, April 5, 1994). However, broadcast consultant Jerry King stated that in his 25 years of experience he has seen this response to format changes happen only twice in two markets (J. King, personal communication, April 4, 1994).

Radio stations operate in a dynamic environment. To remain competitive and profitable, radio station managers have had to change and adapt to shifting conditions. Programming niches have divided the listener base resulting in advertisers having numerous groups of listeners from which to choose. Stations fiercely compete in an over-crowded market for the same programming niche and advertising dollar. Anderton stated that "the result of these conditions is a far higher-than-normal station failure rate in the industry"(Anderton and Sanders, 1992, 6). To survive, radio station managers had to change and adapt to this new environment. The most common change is to the station's format.

Change

Harvard Business School professor Rosabeth Moss Kanter, Barry A. Stein, and Todd D. Jick stated that change is hard to define. They adopted the contemporary idea of change as being movement between distinct states, which they characterized as discrete and fixed. Discrete and fixed states are identifiable and separate from each other and are stationary. Change is described as motion between "state 1 at time 1 and state 2 at time 2." This movement is seen as ubiquitous and multidirectional. Kanter, Stein and Jick described planned organizational change:

Deliberate change is a matter of grabbing hold of some aspect of the motion and steering it in a particular direction that will be perceived by key players as a new method of operating or as a reason to reorient one's relationship and responsibility to the organization itself, while creating conditions that facilitate and assist that

reorientation (Kanter, Stein and Jick, 1992, 9).

Howard Carlisle stated that to understand the complexity of corporations and change, it is important to have a systems view of organizations. Systems theory assumes that nothing exists in nature that is unattached. To truly understand an organization, one needs to know the relationships that contribute to its existence. Carlisle observed that "a system is an entity consisting of a composite whole formed of interdependent parts or elements involving relationships that contribute to the unique characteristics of the whole" (Carlisle, 1982, 62).

The emphasis is on the organization as a whole and the relationship among its constituent parts. Relationships that exist among the elements can be studied and understood by the unique characteristics they give the whole, and by their cause-and-effect interdependencies. Corporations are systems composed of such constituents as owners, managers, employees, vendors, competitors and customers. Changes in any one component will affect the relationships among all the other elements in the organization's system (Carlisle, 1982, 59).

Leon Martel identified two basic kinds of change: structural and cyclical. He defined structural change as a "fundamental transformation of some activity or institution from a previous state" (Martel, 1986, 32). Structural changes are almost always permanent and prompt other changes in the environment. The transformation of the government's approach to broadcast regulation from the trusteeship approach to the marketplace model would fit Martel's structural change definition (Martel, 1986, 39).

Martel described cyclical change as having a temporary nature. Cyclical change does not cause any transformation in the structure of institutions or activities. The duration of cyclical change is limited, which means that adjustments to it is temporary. Martel used economic growth rates as an example of cyclical change. He noted that a country will enjoy high annual rates of growth and then later realize a downturn in growth (Martel, 1986, 39).

Radio stations provide good examples of cyclical change. Stations often have periods where their format was popular and the economy strong. Then listener's tastes change, a new competitor emerges with a better format, or the economy becomes weak, often causing the station to lose money.

Organizations operate in an atmosphere of change. Whether the change is structural or cyclical, businesses need to change and adjust to their environments. To accomplish this, companies need to analyze the current environment, identify a need for change, and follow a process that implements planned change. The following section presents and discusses the process of change management.

Change Management

According to Edgar Schein, Kurt Lewin is the father of planned change. Schein felt that it was most useful to start understanding planned change by going back to the model first proposed by Lewin (Schein, 1980, 239). Lewin developed a way of examining change called force-field analysis. According to Lewin, change is not an event, but a "dynamic balance of forces working in opposite directions" (Hellriegel, Slocum, and Woodman, 1986, 590). Lewin observed:

In discussing the means of bringing about a desired state of affairs one should not think in terms of the "goal to be reached" but rather in terms of a change "from the present level to the desired one. The discussion thus far implies that a planned change consists of supplanting the force-field corresponding to an equilibrium at the beginning level L_1 by a force-field having its equilibrium at the desired level L_2 . It should be emphasized that the total force-field has to be changed at least in the area between L_1 and L_2 (Lewin, 1951, 224).

His theory originally was derived from a physics concept. For example, Einstein theorized space as a system of distributed gravitational and electromagnetic forces. The distribution of such forces in an environment "determines what an object with certain properties will do in that environment" (Riordan and Riordan, 1993, 86).

Lewin's force-field theory asserts that the "properties of any given event are determined by its relation

to the system of events of which it is a component" (Riordan and Riordan, 1993, 86). That is, a change situation involves moving from a current condition to a desired condition. This situation is thought of as a field in which "forces are facilitating change and forces are hindering change." This theory assumes that most situations are held in equilibrium by these two opposing forces (Conner and Lake, 1988, 90).

For example, Corbett and Norman used force-field analysis to identify individuals' positive and negative perceptions when a company introduced change in the form of new computer technology (Corbett and Norman, 1991, 11). Stokes also stated that force-field analysis is a good management tool for information systems professionals to use to identify facilitating and restraining forces when trying to attract users to their systems (Stokes Jr., 1989, 31). Nicholas further identified force-field analysis as a "technique that can be used to investigate which forces act on a current project or which might influence an upcoming project, and to determine where emphasis is needed to increase a project's likelihood for success" (Nicholas, 1989, 38).

Hellriegel, Slocum and Woodman assert that using Lewin's model has two major benefits. First, it requires managers to analyze the current situation, and second, to identify factors that can and cannot be changed. "Managers often waste a great deal of time considering actions related to forces over which they have little, if any control" (Hellriegel et al., 1986, 591). For example, a radio station manager desiring to improve profitability must analyze the current situation. Forces for and against the changes needed to improve profitability would have to be identified and understood. The radio manager may need to change the station's format. However, there may be many forces opposing this change such as owner's dislike of proposed format, advertisers desires, and competitive pressures. Instead, the manager chooses to reduce station expenses which has fewer and weaker opposing forces.

As Lewin observed: "To decide how best to bring about such an actual change, it does not suffice to consider one property. The total circumstances have to be examined" (Lewin, 1951, 224). The concept is

useful in that it identifies and describes these forces, thereby facilitating management strategies to best manage change.

To initiate change, management must change the equilibrium of the forces. Hellriegel, Slocum and Woodman observed that a manager might attempt change by:

- a) Increasing the strength of the pressure for change.
- b) Reducing the strength of the resisting forces or removing them completely.
- c) Changing the direction of a force --- that is, change a resistance into a pressure for change (Hellriegel et al., 1986, 591).

Lewin's Force-field Theory: A Three-Step Model For Change

Kanter, Stein and Jick noted that most change theories are typically modeled after Lewin's three-part process of change whereby an organization is moved from a flawed current condition to a desired condition (Kanter et al., 1992, 375). Lewin's theory is composed of a three-stage model of change with the steps being: unfreezing, changing, and refreezing (Lewin, 1951, 228-229). Kanter, Stein and Jick explained that the three-part process of change embodied:

- 1) The company must be awakened to a new reality and must disengage from the past, recognizing that the old way of doing things is no longer acceptable.
- 2) Next, the organization creates and embraces a new vision of the future, uniting behind the steps necessary to achieve that vision.
- 3) Finally, as new attitudes, practices and policies are put in place to change the corporation, these must be "refrozen" or solidified (Kanter et al., 1992, 375).

The unfreezing step is the first stage of change and usually involves reducing the forces that seek to maintain the status quo. Hersey described it as a "thawing-out process in which the forces acting on individuals are rearranged so that now they see the need for change" (Hersey and Blanchard, 1988, 387). The goal is to motivate and prepare individuals or groups for change.

Hellriegel, Slocum, and Woodman described the moving, or change, step as the development of new behaviors, values, and attitudes through changes in organizational structures and processes (Hellriegel et al.,

1986, 591). Hersey asserts that the change process occurs by one of two mechanisms: identification and internalization. Identification occurs when role models are provided from whom individuals can learn new behaviors. Internalization occurs when individuals are placed in an environment that demands new behaviors of them if they are to operate successfully in that setting (Hersey and Blanchard, 1988, 382).

The third stage of the change process, refreezing, is described as the step that "stabilizes the organization at a new state of equilibrium" (Hellriegel et al., 1986, 591). This is often done through supporting mechanisms such as organizational culture, norms, policies, and structures. The concern with this step is that the new behaviors of the individual or group do not disappear over time. (Hersey and Blanchard, 1988, 382-383).

Lewin's force field theory explains how forces initiate the process of change. Change is described as movement from a current condition to a desired condition. This environment is characterized as a field where there are forces facilitating change, and forces opposing change. Most situations are held in equilibrium by these two sets of forces. As noted earlier, some broadcasters suggested that a competitor's format change might lead a station to change its format. According to the framework of Lewin's theory, this would imply that a competitor's format change is a facilitating force. This study examined a competitor's format change as a possible force that motivates radio station managers to change a station's format.

THE RESEARCH HYPOTHESIS

An examination of the materials on broadcast regulation, radio programming and formats, change, and change management resulted in the development of a research hypothesis and related questions. Earlier it was observed that when one station in a market changed formats it led another station in the market to change its format. This observation suggests that one of the forces acting on the equilibrium of a station operation is the competition's current format.

A review of the literature suggests that the hypothesis for this study is:

Radio station managers will cite the format change of a competing station as a primary force for considering a change of their station's format. The researcher's definition of primary force was that the factor is observed as the first or second reason to consider a station format change; i.e., that it be evaluated as a strong force and likely to influence a general manager to consider a station format change.

Related Questions

Lewin's force-field theory suggests that there are many forces, pro and con, that maintain an organization's equilibrium. While not directly related to the study, two related questions were investigated on a preliminary basis for future research. They were:

How will managers evaluate a set of possible forces, in terms of their importance, for changing a station's format?

How will managers evaluate a set of possible forces, in terms of their importance, for opposing a station's format?

METHODOLOGY

Lewin's theory observed that the change of the strength of a force would alter the forces maintaining the equilibrium and thus cause change to occur. The researcher hypothesized that a format change of a competitor is one of the forces that influence a station manager to consider a station's format change. The concept was operationalized through depth interviews and a survey questionnaire. The depth interviews were conducted with individuals from different parts of the country, with various market size backgrounds, and who had radio format change experience. The survey questionnaire was conducted by telephone with a census of radio station general managers in Akron, Canton, Cleveland, and Youngstown.

The researcher used methodological triangulation for this study. This strategy permitted the

researcher to explore, gather information, and construct a questionnaire on the topic with depth interviews. The survey was conducted to measure the factors discovered in the interviews. This strategy was not intended to show corroboration, but rather to better study and understand the attitudes of radio station managers and the dynamics of radio format changes.

A purposeful sampling method was used for the depth interviews in selecting information-rich cases for study. For the qualitative part of the study a snowball sampling method was used to recruit subjects for interview (Patton, 1987, 56). The survey questionnaire used a census of four Northeastern Ohio markets for study. A census of a small population was used since the survey questionnaire did not utilize established measures and was untested (True, 1983, 83). Thus, one outcome of this study would be a questionnaire that has been tested and is capable of being used to conduct future research with a larger sample.

The population surveyed in this study included radio station managers in the Akron, Canton, Cleveland and Youngstown metropolitan markets. Station managers were selected from radio stations reported in the Arbitron Company rating surveys. Radio station managers from stations reported in the Fall 1993 Arbitron, from the markets listed, formed the census. The total size of this census was 31. A total of 23 individuals participated in the research, 7 from Akron/ Canton, 9 from Cleveland, and 7 from Youngstown (Arbitron, 1993, III).

The Qualitative Research: Depth Interviews

The researcher used depth interviews, a qualitative approach, as the pilot component of the study. Wimmer and Dominick observed that depth interviews give investigators the opportunity to use broad questions to gain information on a subject (Wimmer and Dominick, 1994, 154-155). The depth interviews also were used to assist in constructing a questionnaire for the survey. The researcher interviewed eight individuals for this study. These information-rich cases included persons with the following backgrounds: 1) a vice president and executive sales director of a medium-market broadcast company, 2) operations manager

and program director for a small-market radio station, 3) a vice president and general manager of a radio station, 4) a radio broadcast consultant of a major national consulting firm, 5) a vice president and general manager of a major market advertising agency, 6) a president of a national radio broadcast consulting firm, 7) a vice president of a national group of 13 radio stations, and 8) a president of a multi-media corporation owning 15 radio stations.

The Quantitative Research: Survey Questionnaire

The researcher constructed the questionnaire for this study so that each radio station manager's attitudes were measured using two Likert scales (Singletary, 1994, 84-85). In this study, respondents evaluated factors that were identified in the depth interviews as motivating and opposing forces for a radio station's format change. On one scale, respondents were asked to evaluate factors on a scale from 0 to 10 with 0 as 'not a reason at all' and 10 'as the strongest possible reason' to make a format change. Since the survey was conducted over the telephone, it was easier for respondents to remember and use this scale in their evaluations.

The researcher then used another Likert scale to examine the same variables. Participants could respond to factors with either highly likely, likely, neutral, unlikely, or highly unlikely. The results of this approach assisted the researcher in gaining an understanding of the factors under examination and provided information for more extensive research.

Babbie notes that the ultimate validity of a measure cannot be proven. It is difficult to say that a measure truly reflects a concepts meaning. As for this study's measure to test if a competitor's format change is a force that influences other station managers to consider a station format change, it has face validity. Since this study did not use any established measures and the survey questionnaire was untested, there is no way to assess the reliability of this research (Babbie, 1992, 130-131).

Data Analysis

Depth Interviews

Inductive analysis was used to analyze the qualitative data. Patton identifies inductive analysis as one method of organizing themes and patterns in the data. Once data is collected, the formal analysis begins. He identifies inductive analysis as a method whereby "patterns, themes, and categories of analysis come from the data; they emerge out of the data rather than being decided upon prior to data collection and analysis" (Patton, 1987, 150). There are two kinds of patterns that materialize from the analysis of the data: (1) the categories developed and articulated by the participants in the study, and (2) the patterns which people did not label "and the analyst developed terms to described these inductively generated categories" (Patton, 1987, 150).

Survey Questionnaire

Univariate analysis was used by the researcher to study and interpret the meaning of the data collected through the survey questionnaires. The analysis of the data involved descriptive statistics that examined frequency distributions, measures of central tendency, and measures of dispersion of the data (Babbie, 1992, G3).

Data analysis was accomplished using the Statistical Package for the Social Sciences (SPSS release 4.1) through the Kent State University mainframe computer. The following section details the results of the analysis of the data collected from the depth interviews and survey questionnaire (Norusis, 1983).

RESEARCH RESULTS

Depth Interviews

Motivating Forces for Changing a Radio Station's Format

The researcher conducted the depth interviews during the first two weeks of April 1994. The

researcher questioned participants and probed for reasons or forces that move radio managers to change the formats of their radio stations. Out of this path of inquiry, the researcher identified nine factors that possibly act on radio managers to make a station format change. The factors include slippage in station ratings, lack of sales revenues, competitive moves such as format changes, the development of a hot new format, ownership change of a competitor, ownership change of station, station research, marginal profits, and anticipated format change of a competing station. None of the participants cited every item listed above. Each of the respondents noted three or four factors. When combined, a list of nine potential factors was developed to determine what leads radio station managers to consider a radio station format change. These factors were slippage in ratings, lack of sales revenues, competitive moves, the development of a hot new format, ownership change of competitor, own station ownership change, station research, marginal profits, and anticipated format change of competing station.

One of the most cited factors for changing a radio station's format was the lack of sales revenues. Six of eight people noted the lack of sales revenues in the current format as a very strong reason to change formats. Another most cited factor for changing a station's format was slippage in station audience ratings. There were five respondents who cited falling audience ratings of a radio station's current format as a strong reason to change.

The most cited factor for changing a radio station's format was competitive pressures. All eight participants described competitive pressures as a force in deciding to change a radio station's format. Respondents noted that competitive moves such as format changes, changes to a hot new format, or attacks by a competitor in a similar format would lead them to consider a station format change. It is important to note, however, that only one of the individuals cited this as a very strong reason to change formats. Two participants noted it as their secondary factor, and the remaining five people stated this as a third or fourth lesser factor in contemplating a station format change.

Opposing Forces To Changing a Radio Station's Format

Upon completing the discussion on forces that might lead the participants to change a radio station's format, the focus switched to factors that may lead them to reconsider their decision. The question was framed: Given that the individual was contemplating a format change, what then would be factors or reasons to reconsider changing a station's format?

The following factors were identified by the participants as reasons to not change a format: ownership dislike of the proposed new format, current station advertisers, current loyal listeners, being unique in current format, the cost of changing a station's format, weak sales force to sell new format, station research, consultant's advice, and deep pockets of competitor. Unlike the forces for changing a radio station's format, there was no factor that was identified by a majority of the participants. Some factors received mention by three respondents; all the other factors were observed only once.

The forces against change identified by three participants included the station's current advertisers, current listeners, and station research. The loss of current advertisers was noted by both the small-market radio manager and the president of the company owning several stations. The president of the broadcasting company observed that anytime a radio station changes format, it starts from ground zero and will need to build another listener and advertiser base. His comment was that too many radio managers underestimate the loss of business that occurs when changing a radio station's format.

Another factor identified by three individuals was current listener loyalty. Participants observed that current listenership might lead the manager not to change a station's format, particularly if the potential audience for the proposed format is questionable. One respondent commented that often it is a matter of studying the current listeners and determining if the station can encourage them to listen longer, and during other days and dayparts. Improvements are then made to the current format which then leads to an increase in the station's ratings. Consequently, the station avoids changing its format.

Station research was another factor identified by three respondents as a reason to not to change a radio station's format. They noted that research may reveal that potential listeners, advertising revenues, or both for a proposed format may not be as great as first thought. In addition, station research may reveal that improvements in the current format would build more listeners and advertising dollars than making the costly move of changing the station's format. The remaining force identified by three participants was the cost of changing a station's format. All three individuals noted that this is not a strong or primary force, but it is a consideration that might make them not change the format.

One comment worth noting is that it all comes down to what can be described as the risk vs. benefit ratio. All the risks and all the benefits have to be weighed and examined before changing a radio station's format. His thoughts were that the factors mentioned to changing a format, pro and con, need to be weighed against the potential benefit of making that change. Are the prospective revenue benefits worth the risk of making a change?

Changing A Radio Station's Format

In exploring radio format changes and change management, the researcher asked the eight participants to describe the process of changing a radio station's format. All the respondents observed that format changes are dependent on the condition of the station and its market. No two situations are alike. In their observations, planning, timing, and staff changes would be different for each station's format change.

Six of the eight people stated that once a decision is made to change a station's format, it is usually executed quickly. The six respondents indicated the timing of a format change from when a decision is made to implementation is between one and four weeks. They felt the timing was important because they feared the decision would leak out and give the competition time to gear up a combative marketing campaign. Two individuals noted that they had changed a station's format in three to four days, although it is something they would not recommend. In one case, the respondent observed that a station was offered a large amount of

money by a competitor, with a similar format, to drop and change its current format in two hours. The station agreed to do it, and in two hours dropped the current format. For three days the station played the songs of one artist from the new format until a new music library arrived.

One participant said that when the station changed its format, he had hired telemarketers to handle calls from listeners. Telephone calls were screened so that positive calls of praise were passed on to the announcers. Negative calls were taken by telemarketers who listened, probed for reasons of dissatisfaction, and offered information to the caller/listener on how the format change improved the station's ability to serve its listeners. The unhappy listener was then offered a dinner for two at a nice restaurant if he or she would listen, try out the station's new format, and then call with feedback. The respondent noted that this approach was extremely successful in handling and converting irate listeners from the old to the new format.

Survey Questionnaire

The census was comprised of 20 males and 3 females. Twelve of the 23 had greater than 15 years of radio management experience, 7 had between 10 and 15 years, 1 had between 5 and 10 years, and 3 respondents had less than five years of radio management experience. Seven of the 23 individuals were general managers of group owned stations. The other 16 were general managers of radio stations that owned no other stations outside their market. The ages of the respondents ranged from 22 to 74. The median age was 49 with a mean age of 48.7. Four respondents refused to provide ages.

Seventeen of the 23 participants had changed a radio station's format. The other six people had no format-change experience. Of the 17 who did, five individuals had experience changing a radio station's format once, six people had changed formats two times, three people had changed formats three times, two participants had changed formats four times, and one respondent had changed a radio station's format seven times.

The following sections provide results of the attitude measurements of factors for and against changing a radio station's format. Data analysis involved descriptive statistics that included frequency distribution, mean, mode, and standard deviation.

Possible Forces That Influence a Format Change

The researcher had the respondents evaluate potential factors that may influence a radio manager to change a station's format using a 0 to 10 scale. A score of 0 meant the factor is not at all a reason and a score of 10 was the highest possible reason to change a radio station's format.

The results of the survey questionnaire appear to support the results of the depth interviews. The factor, a competitor's format change, received a mean score of 3.565. At first glance this would indicate that radio general managers in the census rated a competitor's format change as a very low reason to consider changing their station's format. However, the standard deviation is large, 2.761, which indicates the scores were widely distributed from the mean. The range of reported scores was a minimum of 0 with a maximum of 8. The mode value was 0 with a frequency of 5. The values 2, 3, 5 and 8 had a frequency of 3.

While the results indicate that radio station managers in Akron, Canton, Cleveland, and Youngstown cite a competitor's format change as a weak motivating force for a station format change, the range and frequency distribution of the scores may indicate that the strength of this factor varies. Five of the radio station general managers evaluated this factor with a 0, but the other 18 respondents measured the factor between 1 and 8. While the mean score indicates this is a weak factor, the range and frequency distribution of each of the scores exhibit strength that varies between 0, not at all a force, to 8, strong.

Radio station general managers in the census were asked to evaluate nine potential forces in the survey questionnaire. Evaluations were accomplished using the same 11-point Likert scale. Slippage in station ratings, lack of sales revenues, marginal profits, and station research received mean scores of 7 or higher in measurement. But the standard deviation for each of the factors mean scores was large. This

indicates that the scores were widely dispersed. However, the frequency distribution of each score showed that the majority of the respondents evaluated these factors as 6 or higher.

The next segment of the survey used a another Likert scale to measure the attitudes of radio general managers toward possible factors influencing a station format change. The scale used was 1 'highly unlikely,' 2 'unlikely,' 3 'neutral,' 4 'likely,' and 5 'highly unlikely.' An examination of the results of the second Likert scale measurements indicate that a competitor's format change is unlikely to lead a station manager to change a station's format. The mean score was 2.304 with a standard deviation of 1.063. In this census, radio station managers observed that it is unlikely a competitor's format change would lead them to consider a station format change. However, the standard deviation is somewhat large exhibiting a wide dispersion of scores. The mode was 2 (unlikely) with a frequency of 8. The range and frequency distribution of each score varied from a score of 1 (Highly Unlikely) with a frequency of 6 to a score of 4 (likely) with a frequency of 4. There were 5 respondents who cited the value of 3 (neutral) for this factor. Overall, 14 respondents rated this factor at least unlikely, but 5 cited neutral and 4 responded with likely.

Evaluations were made for the other motivating factors that might influence a radio general manager to change a station's format. The measurements exhibit the clearest results for lack of sales revenues with a mean score of 4.652 and standard deviation of .714, marginal profits had a mean score of 4.130 and a standard deviation of .968, and station research had a mean score of 3.783 and a standard deviation of .736. The results indicate that the radio station managers in the census evaluated these factors as likely to motivate them to consider making a station format change. Slippage in ratings also received a mean score of 4.087, but the standard deviation was 1.240. The frequency distribution though showed that 18 of the 23 respondents rated this factor likely or higher as a motivating force.

The other factors of competitor's format change, hot new formats, anticipated format change of competitor, ownership change of competitor, and own station ownership change received mean scores that

rated the factors unlikely to lead the radio station general managers in the census to consider a station format change. However, the factors' mean scores had standard deviations that were large indicating a wide dispersion of scores.

Possible Factors Opposing A Format Change

In the final segment of the survey, respondents, using a Likert scale, measured possible factors that might influence radio sales managers to reconsider a station format change. The same Likert scale was used again 1 'highly unlikely,' 2 'unlikely,' 3 'neutral,' 4 'likely,' and 5 'highly likely.' The score reflected a radio station manager's attitude towards potential factors that may cause a decision to change a station's format to be reconsidered. The results of these measurements were inconclusive. Most of the mean scores for these factors had large standard deviations indicating a wide distribution of scores.

Summary

The intention of this study was to examine one specific force that may influence radio station managers to change formats. As it was, the small size of the census limited the ability of the research to examine the hypothesis. What this study does find is that there are a number of forces that influence change, as noted by Lewin. However, due to the study's limitations, the exact nature and strength of those forces are unknown.

The results of this study do not support the research hypothesis. The data collected from the depth interviews identified a competitor's format change as a potential force in influencing a radio station's manager to consider a station format change. But most of the eight individuals interviewed noted the force as a third or fourth reason. Analysis of the data gathered through the survey questionnaire showed that radio station general managers in the census do not cite this factor as a primary force. A competitor's format change was evaluated by the census as a weak influence in the consideration of a station format change. However, the

dispersion of the scores indicate that the presence and/or strength of this force varies among the participants in the census.

The pursuit of this research produced two related questions: what are the motivating forces that influence a station manager to consider a station format change?, and what are the opposing forces that influence a station manager to reconsider a format change? The depth interviews identified nine potential motivating forces. These forces were slippage in station ratings, lack of sales revenues, competitive moves, the development of a hot new format, ownership change of competitor, own station ownership change, station research, marginal profits, and anticipated format change of competing station.

The evaluations of radio general managers from the census exhibited the clearest results for lack of sales revenues, marginal profits, and station research. These factors were identified as forces that would likely influence the managers to consider a station format change. Slippage in station ratings was evaluated as a likely force, but the dispersion measurements for this factor showed the evaluations varied widely.

The other factors of competitive moves, hot new format, anticipated format change of competitor, ownership change of competitor, and own station ownership change were rated as unlikely to lead the census to consider a station format change. However, the evaluations were widely dispersed for all these factors. This means that the strength and/or presence of these forces varied among radio managers in the census.

The depth interviews identified ten possible forces opposing a radio station format change. The forces identified were: ownership dislike of prospective new format, current station advertisers, current loyal listeners, being unique in current format, cost of changing a station's format, a weak sales force, station research, cost of operating new format, consultant's advice, and deep pockets of competitor. Measurement of these factors in the survey questionnaire were inconclusive. The dispersion of the scores made the results unclear.

Conclusion and Implications

Although the initial results of this study failed to confirm the research hypothesis, this conclusion would be premature. The distribution of the scores from the survey questionnaire showed that the strength of a competitor's format change varies in its ability to influence radio station general managers in the census to consider a station format change. One possible explanation for these results is that the size of the census surveyed was small. This could affect the ability of the descriptive statistics to provide clear results.

Comments offered by some of the respondents offer another interpretation. In evaluating the forces of change, one respondent stated that "it depends on the corporate strategy" of what would lead a station manager to consider a station format change. Another individual from Cleveland said that the only way his station would change formats "is if it got bought," because the station is focused on serving the ethnic community with ethnic-centered programming.

The comments suggest that one possible element influencing the distribution of survey scores in the evaluation of forces is the mission or goals of each station. Lewin stated that change is movement from a current condition to a desired condition. The researcher suggests that one component not considered in the study is the radio station's current point of equilibrium and what, if any, is the desired point of equilibrium. The desired equilibrium in the example of a radio station may be defined as its mission or goals.

The goals may range from a level of profitability to serving the needs of a specific listening audience with specific information and entertainment. The respondent with the ethnic-centered programming served the ethnic community. This station's mission was to serve this specific audience. No factor, according to the participant, would lead the station to change its format except if it is sold. Another radio station general manager may be influenced to change a station's format if its level of profitability dropped below a certain point.

An additional explanation for the results of the survey questionnaire was that participants were asked

to evaluate and rate potential motivating and opposing factors individually. One respondent commented that "it's a combination of things that lead a radio general manager to make a station format change. A participant from the depth interviews stated that the dynamics of radio station format change are complex. Lewin observed that forces have various strengths and that the sum of these forces maintain the equilibrium. Thus evaluating and rating each factor separately may be unrealistic and out of context.

While this study did establish that a competitor's format change as a possible motivating force among the participants in the research, the strength of this factor is still unknown. A better question would be: when is a competitor's format change a significant force in influencing a radio station manager to consider changing a station's format?, and what is its strength in relation to other factors?

The implications of this study: the presence and strength of forces that act on radio station managers are dynamic and complex. The findings suggest that station managers do not have identical forces with identical strengths acting on them. There appears to be other variables that determine the forces which create equilibrium for a station.

Limitations

There are limitations to this study that need to be noted. First, the results of the depth interviews cannot be generalized. The nature of qualitative methods makes it difficult to generalize results. Naturalistic inquiry is excellent for observing and gathering information on the experiences of participants. Patton observed that the term generalization in qualitative research gives way to extrapolation. Extrapolations are mild speculations on the likely applicability of results to other similar situations. They are thoughtful, logical, and useful when based on data collected from information-rich sources (Patton, 1987, 168).

Data collected by the survey questionnaire is limited in its ability to be generalized. A census of radio station general managers in Akron, Canton, Cleveland, and Youngstown was surveyed. Their input provided

a better understanding of the topic. It is unknown how this census reflects the attitudes of radio station general managers in the U.S. Thus, the results can be generalized to the population of the census, but nowhere else.

The final limitation concerns the questionnaire used for the survey. The questionnaire did not use established measures and was untested. Although it had face validity, there is no way of evaluating the reliability of this questionnaire.

Recommendations

This research serves as a pilot study for gaining familiarity with the subject of radio station format changes. The results indicated that the dynamics of radio station format changes are complex. The researcher recommends that future studies investigate how the station mission or goals determine which motivating and opposing forces influence a station format change. In addition, other variables such as market size, type of ownership, and the general manager's experience should be examined to determine if there are any significant relationships that decide the forces influencing or opposing radio station general managers to consider a station format change.

Future research needs to be conducted concerning the second part of Lewin's force-field theory of change in relation to station format changes. The first part of Lewin's force-field theory requires managers to analyze the current situation and identify which forces can and cannot be changed. The second component, which involves Lewin's three stage process of change, was not within the scope of this study. However, during the depth interviews the researcher did query participants on how station format changes were implemented. Information collected did indicate support for Lewin's three stage process of change, but further research is needed.

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AN INVESTIGATION OF FACTORS AFFECTING JOB SATISFACTION AND
CAREER MOTIVATION OF ON-AIR RADIO PERSONALITIES

A Paper Presented to
Association for Education in Journalism and
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by

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Abstract

This study uses Herzberg's Two-Factor Theory, Vroom's Expectancy Theory and London's Theory of Career Motivation to analyze employee motivation. Radio personalities within the state of Indiana were mailed questionnaires and interviewed by phone to respond to questions regarding satisfaction and dissatisfaction within their jobs. The study found support for Vroom's Expectancy Theory and partial support for Herzberg's Two-Factor Theory. However, the study's findings did not replicate the London based study of Noe, Noe, and Bachhuber concerning career motivation.

Review of Literature

The on-air radio personality, whose voice wakes people in the morning, provides information about dangerous weather and accompanies people to the beach, has touched American society since the early twentieth century. The first licensed radio station, KDKA, Pittsburgh, operated by Dr. Frank Conrad, began a flurry of interest in the radio industry (Sterling & Kittross, 1990). From that tentative beginning, the radio industry has remained far from static. Changes in personnel and technology created an even more complex business than originally thought.

This study is an investigation of the factors affecting job satisfaction and career motivation of on-air radio personalities. The research for this study of motivation draws upon Herzberg's Two-Factor Theory, Vroom's Expectancy Theory and London's Career Motivation for its theoretical underpinning. The purpose of this study is to assist station Program Directors in understanding and managing the motivational factors revealed by their subordinates.

The importance of worker motivation should not be underestimated in the radio industry. Personnel serve an important function in maintaining profitability at radio stations. A radio station is a business that creates revenue through selling advertisements. While the on-air radio personalities usually do not sell the advertisements, their job is directly related to this business function. For example, radio personalities often perform the voice work for the advertisement. Indirectly, yet equally important, a station's image is also shaped by the (on and off-

air) behavior of on-air personalities. The radio personality's behavior may be influenced by the amount of job satisfaction or dissatisfaction he/she may feel. Craig and Hindmarsh (1984) feel there is a serious need for emphasis on motivation within the broadcast industry.

Attend any meeting and you will hear still the "rah-rah" kind of motivation for sales people and on-air staff. It's this "let's sell one for the Gipper" attitude that needs to be changed. Industry after industry is concerned about worker motivation. Business schools after business school spend considerable time discussing the need to examine causes of better work performance. The broadcast industry has to begin examining its conception of management and worker motivation from a more critical viewpoint (p. 21-22).

Unfortunately, the few broadcast management textbooks that appear on the market report little on how to motivate radio personnel. The textbooks provide explanations of the popular motivation theories but provide little specific application to broadcast employees (Willis & Willis, 1993; Sherman, 1987; Pringle, Starr, & McCavitt 1995; Lavine & Wackman, 1988). More specifically, the books neglect to discuss how motivation theories pertain to managing radio or television personalities.

For purpose within this study, work motivation is the sum of the energizing forces, both internal and external, that account, at least in part, for certain productive behavior in a person's job (Hitt, Middlemist, & Mathis, 1989). It is acknowledged by researchers from many fields that motivation is a changing process that needs consistent attention. As society changes, people's drives and motivations within their personal and work lives

change. Also, what motivates one person may not motivate another. Therefore, this study focuses on the energizing forces that drive individual workers instead of generalizing one worker's needs and wants as every workers' needs and wants.

There are many theories of human motivation, and more specifically, organizational employee motivation. The strongest worker motivation theories are McGregor's Theory X and Y, Maslow's Hierarchy of Needs, Herzberg's Two-Factor Theory and Vroom's Expectancy Theory (Terpstra, 1979; Pardee, 1990; Craig & Hindmarsh, 1984). This study focuses on Herzberg's Two-Factor Theory, Vroom's Expectancy Theory and London's Career Motivation Theory in belief they will provide insight into the radio personality's work attitudes.

Herzberg's Two-Factor Theory

According to Herzberg (1966), work-related variables contributing to job satisfaction are separate from factors contributing to job dissatisfaction. The factors that compose job satisfaction, often called satisfiers, motivators or intrinsic factors, are achievement, recognition, work itself, responsibility and advancement. These are the components believed to motivate employees within the work place. When satisfiers are absent, motivation is prevented. When satisfiers are present, they lead to satisfaction and motivation when the hygienes are also present (Hitt, Middlemist & Mathis, 1989).

Herzberg (1966) found that the major work dissatisfiers, often called external or hygiene factors, are company policy and

administration, supervision, salary, interpersonal relations and working conditions. Dissatisfiers or hygienes do not motivate employees, but when absent, increase dissatisfaction with the job. When hygienes are present, they prevent dissatisfaction with the job (Hitt, Middlemist & Mathis, 1989).

Satisfiers often produce long-term changes in job attitudes, while dissatisfiers produce short-term changes in job attitudes (Herzberg, 1966). Contrary to conventional wisdom, Herzberg's work showed that the opposite of job satisfaction is no satisfaction rather than dissatisfaction; the opposite of job dissatisfaction is no job dissatisfaction, not satisfaction with one's job (Hill, 1986-1987). In short, satisfaction and dissatisfaction may be considered two different elements in the motivation mix rather than two ends of a single continuum.

Herzberg's Two-Factor Theory, also called the Motivation-Hygiene Theory, was empirically tested using accountants and engineers as subjects (Herzberg, 1966). From the results of Herzberg's extensive studies, the theory has been generalized to other employee groups. Herzberg (1987) performed twelve investigations of the theory on the following groups: lower level supervisors, professional women, agricultural administrators, men about to retire from management positions, hospital maintenance personnel, manufacturing supervisors, nurses, food handlers, military officers, engineers, scientists, housekeepers, teachers, technicians, female assemblers, accountants, Finnish foremen and Hungarian engineers.

Some previous research has provided support for Herzberg's Two-Factor Theory. Hill (1986- 1987) tested college faculty by gathering information from over one thousand full-time faculty at colleges and universities. Hill determined that Herzberg's theory is applicable to institutions of higher learning.

Maidini (1991) tested the Two-Factor Theory and found support for half of the theory. He tested the theory on public and private sections of personnel management using a questionnaire based on the theory. The study concluded that motivators are factors of satisfaction but hygiene factors also were causes of satisfaction. Therefore, some of Maidini's results contradicted the predictions of Herzberg's Motivation-Hygiene Theory.

While there has been much support for Herzberg's Two-Factor Theory, there also has been some criticism. The critics (Hill, 1986-1987; Notz, 1975; Terpstra, 1979; Szura & Vermillion, 1975) say efforts to validate the theory have inconsistent results, therefore raising questions about the adequacy of the theory to predict motivational factors. However, different jobs attract different personnel, and people who may respond differently to motivators. Consequently, studies performed on different professions will yield different results. Herzberg's Theory may be applicable to some professions and not others. This study will seek to discover whether Herzberg's Two-Factor Theory can be used to predict motivational factors of radio personalities.

Vroom's Expectancy Theory

Another major theory of human behavior is Vroom's expectancy Theory. Vroom's (1970) Expectancy Theory has three beliefs: people will perform their jobs if they believe they have the ability to do the job; people will perform their jobs if they believe they will be rewarded for their effort (expectancy); and people will perform their jobs only if they will receive the rewards they desire (valence). Vroom's theory is a mathematical equation expressed as $\text{Motivation} = \text{Valence} \times \text{Expectancy}$ (Craig & Hindmarsh, 1984).

According to Vroom (1970), there are four classes of variables that decide the attitude of a person toward his/her role in an organization and the probability that he/she will leave it. The first class of variables is that outcomes such as pay, status, acceptance and influence attained by a person performing his/her organizational role affect a person's attitude. Second, the strength of the person's desire or avoidance for these outcomes decides a person's attitude. Third, the outcomes believed by a person to be equitable to others influences the person's attitude (i.e. equal pay for equal work). Last, the extent these perceived outcomes meet the person's expectations decides a person's attitude.

Similar to Herzberg's Two-Factor Theory, Vroom's Expectancy Theory has been criticized. Some researchers argue that there is a difficulty in testing expectancy theory because it is difficult to reduce employee attitudes to numbers (Butler & Womer, 1985;

Craig & Hindmarsh, 1984). This study will employ open-ended interview questions to avert this difficulty.

London's Career Motivation

One aspect of work motivation is an employee's desire to further his/her career goals. While some of an employee's motivation contributes to the general good of an organization, career motivation gives the employee incentive to further his/her own life (Noe, Noe & Bachhuber, 1990). Career motivation consists of three individual characteristics: career identity, career insight and career resilience (London, 1983; London & Mone, 1987).

Career identity describes the centrality of a career to an individual's personal identity. In service jobs, career identity describes the extent to which people define themselves through their work (London, 1983; London & Mone, 1987). For example, on-air radio personalities may consider themselves artistic performers. A great deal of radio personalities' work--radio announcing-- may be considered a natural expression of who they think they are.

Career insight is the extent to which people have realistic career expectations, knowledge of their abilities and specific career goals (London, 1983; London and Mone, 1987). For example, some radio personalities may realistically feel they have the talent to work in a large market while others may unrealistically believe their skills, although no better than mediocre, will lead them to a job in New York.

Career resilience describes the ability of a person to maintain a career through adapting to changing circumstances within the work environment (London, 1983; London and Mone 1987). For example, a radio station may be bought by a different corporation and change formats. Resilience describes the on-air personality's ability to accept and adopt this change.

Noe, Noe and Bachhuber (1990) based a study upon London's concepts of career identity, career insight and career resilience. The study was performed through distributing a questionnaire asking attitudes about career identity, career resilience and career insight, to 400 employees working in health care, financial services and computer-related industries. The study discovered that individuals with high work role salience are more likely to engage in career exploration. In other words, those employees with distinctive jobs in society (i.e.. radio personalities) will explore more within their careers. Also, work role salience and job characteristics have the strongest relationship with career motivation. Since radio personalities perform distinctive jobs within society, Noe, Noe and Bachhuber's study may have strong implications for their careers.

Career identity, career insight and career resilience provide theoretical insight that Herzberg's Two-Factor Theory and Vroom's Expectancy Theory do not. These three concepts provide an understanding of the journey throughout a career while Herzberg and Vroom's Theories look at specific facets of a particular work environment. Herzberg's Two-Factor Theory presents the components

within an organization that drive a person to perform a particular job. Vroom's Expectancy Theory narrows employee motivation by examining the human desires that lead to specific tasks in the work place. Noe, Noe and Bachhuber's study focuses on a person's choices and desires throughout the course of a career while moving from job to job.

On-air radio personalities often travel from job to job to further their careers. Moving from one station or market to another is often considered "moving up in the business." An analysis needs to be executed to determine what motivates on-air radio personalities throughout their careers in order to understand the motivating factors within a particular job. Perhaps, employees behave in a particular way within their jobs simply to move toward their career goals.

Research Questions

This study's research questions are guided by Herzberg's Two-Factor Theory, Vroom's Expectancy Theory and London's concepts of career insight, career identity and career resilience. The following research questions lead this study of employee motivation.

- RQ1: What factors internal to the organization serve as motivators for air personalities at a radio station?
- RQ2: What factors external to the organization serve as motivators for air personalities at a radio station?
- RQ3: What factors internal to the organization serve as dissatisfiers for air personalities at a radio station?
- RQ4: What factors external to the organization serve as dissatisfiers for air personalities at a radio station?

- RQ5: What outcomes do radio personalities desire in order to perform their job?
- RQ6: What abilities do radio personalities feel will lead them to desired outcomes?
- RQ7: To what extent do radio personalities have career identity?
- RQ8: To what extent do radio personalities have career insight?
- RQ9: To what extent do radio personalities have career resilience?

Methodology

Subjects

Subjects were on-air radio personalities within the state of Indiana. Two methods were utilized for this study and each consisted of a different sample. One sample, receiving the questionnaire, consisted of all two-hundred thirty-eight-radio stations within the state of Indiana. Bacon's Radio/TV Directory (1992) was used to obtain addresses of all Indiana radio stations. The program director at each radio station was asked to distribute the questionnaire to a morning or daytime air personality. Half the sample was morning air personalities and half was daytime personalities. Morning and daytime air shifts were thought to provide an accurate representation of the variety of full-time radio personalities. Part-time employees were not considered in the study because they may have a different set of motivators than full-time radio personalities. Seventy-two radio personalities completed the questionnaire creating a thirty percent response rate for the mail questionnaire. Fifty-three percent of the

respondents were morning radio personalities and forty-seven percent were daytime personalities.

An interview format usually uses a much smaller sample than a questionnaire. Therefore, the interview sample consisted of twenty-five percent of the sample used for the questionnaire. A stratified sample was used for the phone interviews. The phone interview's sample was based upon the size of the radio station as measured by transmitter power. A breakdown of radio station transmitter wattage was used to determine a station's reach and size. A random sampling within each station wattage category was used to determine the actual stations phoned. While not the only measurement of a station's size, wattage is a commonly used measurement and a reasonable measurement for use within the study.

Each radio station phoned was asked to participate in the study by having a morning or afternoon radio personality complete a phone interview at a later time. If a radio personality was unable or unwilling to participate in the study after three contact attempts then he/she was discarded from the sample. Forty of the fifty-nine subjects completed the interview creating a sixty-eight percent response rate.

Method

Two methods were used to gather data from radio talent: questionnaire and phone interviews. Using both research methods allowed the researcher to gain all the advantages of using each individual method.

The questionnaire (Appendix), derived from London's Theory, was obtained from Noe, Noe and Bachhuber's (1990) study of career motivation that includes career identity, career insight and career resilience. The mail questionnaire was used to acquire answers to research questions seven through nine. The questionnaire used a five-point likert response scale from 1 = "to a very small extent" and 5 = "to a very large extent." This study retests the questionnaire developed for Noe, Noe and Bachhuber's research of career motivation in the medical and computer industries.

The questionnaire also included one open-ended question that partially replicated Herzberg's study. Similar to Herzberg's study, the respondents were asked to briefly describe the incident/event in which they felt the greatest satisfaction at their job. Not only was this question used in the mail questionnaire but was asked during each phone interview. This question added career information the scales did not measure.

The phone interview questions were created to find answers for research questions one through six. The interview questions investigated elements of Herzberg's Two-Factor Theory and Vroom's Expectancy Theory. The phone interview questions were open-ended and the researcher was allowed to probe for further information when needed. An interview protocol provided structure to guide the interviews yet allowed the researcher freedom to clarify and elaborate.

The first step of the interview process was the mailing of letters to program directors within the sample. The letter asked for the station's cooperation with the study and offered the results of the study upon request. Accompanying this letter was a second letter from a well-known member of the Indiana Broadcasters Association that stressed the importance of the study. An appointment was then arranged to interview the station's morning or mid-day radio personality.

Data Analysis

Indiana State University's Computer Center computed the statistical information obtained from the questionnaire. The center provided the mean and standard deviation for each question and a factor analysis of all items within the questionnaire.

The phone interview responses were coded through a thematization process. Groupings of similar responses were determined through an extensive analysis of interview responses. Interview responses were grouped and quantified whenever possible.

Results

This study tested three theoretical perspectives through using radio personalities as subjects. The findings of this study are grouped into two sections. First, the phone interview questions (Appendix) tested Herzberg's Two-Factor Theory and Vroom's Expectancy Theory. Second, the questionnaire tested Noe, Noe and Bachhuber's study of career motivation.

The phone interview responses proved insightful in analyzing the motivational factors of radio personalities. Research

Question one asked what factors internal to the organization serve as motivators for radio personalities. During the interviews respondents answered that they felt successful in their careers because of the work itself. The aspects of the job enjoyed the most were creativity, promotional activities, meeting listeners and having a variety of job duties. Three personalities responded creativity, three responded promotional activities, four responded meeting listeners, and three personalities responded that job variety was the aspect of the job enjoyed the most.

The radio personalities felt positively about the recognition from co-workers and program directors and feedback from co-workers was highly regarded. Thirty-five percent of the respondents wanted more job responsibility than they were given, fifteen percent wanted less, and fifty percent were content with the amount of job responsibility. Twenty-three percent of the respondents sought advancement through station ownership, thirty-five percent sought management positions, fifteen percent wanted positions outside radio, and twenty-seven percent had other responses.

Research question two asked what factors external to organization served as motivators for the radio personality. Forty-percent of the respondents replied that they had never received a tangible award for their job. Sixty percent had received awards such as trade magazine awards, community service awards and thank you cards. Feedback from listeners was a common source of recognition recognized by the respondents. Talking with

listeners was a frequently mentioned enjoyable aspect of the work itself. Fifty percent of the respondents felt their employment pursuits could be achieved at their present station. The remaining fifty percent felt they needed to leave the organization to achieve their career goals. This percentage implies that half the radio personalities felt they could not be fully motivated or satisfied within their current organization.

Research question three asked which factors internal to the organization served as dissatisfiers for air personalities. Respondents felt the most discouraging aspects of their jobs were working for a large corporation and communication breakdowns with management.

In relation to their supervisors, radio personalities reported little dissatisfaction. Ninety-five percent of the radio personalities had daily contact with their supervisor while five percent had monthly or biweekly contact. Eighty-one percent of the respondents received oral feedback and nineteen percent received both oral and written feedback from their supervisors. Eighty-three percent of the respondents felt the amount and type of feedback was appropriate, eight percent wanted more contact, eight percent wanted better quality feedback and three percent wanted less contact with their supervisors.

Fifty-five percent of the radio personalities felt they were adequately compensated for their work while forty-five percent felt they were inadequately compensated. However, many who felt adequately compensated noted that they were inadequately

compensated for the amount of work they do but felt adequately compensated in comparison with others in the field, or within the same market.

Eighty-seven percent of the radio personalities responded that job security was important to them. Eighty-five percent stated they had job security, but only thirteen percent had a contract with their station. The radio personalities felt they had security because of their talent, longevity of employment, market size or verbal assurance from management.

Research question four asked which factors external to the organization served as dissatisfiers to the radio personalities. Air personalities responded that the major factors of dissatisfaction external to the organization were job instability, limited job openings and the fact that success in the business is "all in who you know." Three respondents named job instability, three mentioned limited job openings and three personalities mentioned "all in who you know" as dissatisfiers.

Research question five examined which outcomes radio personalities desire in order to perform their job. The interviews discovered that recognition and a specific market size were desired by radio personalities. Forty-two percent of air personalities mentioned a desire for recognition and thirty-two percent had a desire to move to a specific market size. Radio personalities spoke of desires to produce quality work and to have that work recognized by supervisors and peers as distinctive. There was no one market size desired by all radio personalities

but specific market sizes were often mentioned as desirable outcomes by individual radio personalities. According to Vroom, a person is motivated in future performance if these desired outcomes are achieved.

Research question six asked what abilities radio personalities feel will lead them to their desired job outcomes. Five radio personalities mentioned confidence and seven mentioned creative freedom as the abilities needed to further their talents. The radio personalities felt confidence and creativity are furthered through working every day at doing the best possible job. Fifty-six percent of the respondents felt their talent fell above the demands of their position and no one felt their talent fell below the demands of the position. This percentage supports Vroom's Expectancy Theory that states that a person must first believe he/she has the ability to do a job, more effort will lead to higher performance and this effort will lead him/her to desired outcomes.

The last three research questions sought to test Noe, Noe, and Bachhuber's study of career motivation. Each table reports the questions, mean and standard deviations to assist in the interpretation of the questionnaire results.

Research question seven asked to what extent radio personalities have career identity. Questions 5, 10, 15, 22, and 24 of the questionnaire focused on career identity (see table one).

Table One. The Mean and Standard Deviations of Career Identity.

QUESTION	MEAN	STANDARD DEVIATION
Q5. To what extent do you stay abreast of developments in your line of work?	4.127	.985
Q10 To what extent have you kept current on company affairs?	3.915	1.038
Q15 To what extent have you taken courses toward a job-related degree?	2.958	1.686
Q22 To what extent do you spend your free time on activities that will help your job?	3.414	1.070
Q24 To what extent have you joined professional organizations related to your career goal?	2.157	1.223

The results of the questionnaire portrayed no particular pattern of career identity. The extent that radio personalities kept current on company affairs (question 10) and spent free time on activities that will help their job (question 22) had the majority of responses falling from a moderate to a large extent. The extent that radio personalities stayed abreast of developments in their line of work (question 5) had the majority of responses falling in the categories large and very large extent.

The responses concerning the extent that radio personalities had taken courses toward a job related degree (question 15) were mainly at either end of the likert scale. The extent that radio personalities had joined professional organizations related to their career goal (question 24) was primarily from a very small moderate extent. These two question, having a large number of responses falling within a very small extent, may show radio personalities preferring to work on furthering their career on

their own rather than through a formal organization (i.e., university, professional organization).

Research question eight asked to what extent radio personalities have career insight. Questions 2, 4, 7, 9, 12, 14, 17, and 19 represented the factor of career insight (see table two).

Table Two. The Mean and Standard Deviations of Career Insight.

QUESTION	MEAN	STANDARD DEVIATION
Q2 To what extent have you asked your boss to discuss your specific skill strengths and weaknesses?	2.958	1.303
Q4 To what extent have you taken the initiative to discuss your career goals with your boss?	3.169	1.530
Q7 To what extent have you sought job assignments that will help you obtain your career goal?	4.042	1.101
Q9 To what extent have you changed or revised your career goals based on new information you have received regarding yourself or your situation?	3.606	1.236
Q12 To what extent do you ask co-workers you respect for feedback on your	3.535	1.157
Q14 To what extent do you feel you are aware of your skill strengths and weaknesses?	4.296	.782
Q17 To what extent do you have a specific plan for achieving your career goal?	3.300	1.278
Q19 To what extent do you have a specific career goal?	3.957	1.148

The distribution of responses showed that radio personalities predominantly had career insight from a moderate to a large extent. However, the responses to questions 2, 4, and 12 fell proportionately among all possible responses. These questions asked to what extent he/she has: asked the boss to discuss

specific skill strengths and weakness (question 2), taken the initiative to discuss career goals with the boss (question 4), and asked co-workers for feedback on his/her performance (question 12).

Research question nine asked to what extent radio personalities have career resilience. Questions 1, 3, 8, 11, 13, 16, 18, 20, 21, 23, 25, and 26 of the questionnaire tested this factor (table three).

Table 3. The Mean and Standard Deviations of Career Resilience.

QUESTION	MEAN	STANDARD DEVIATION
Q1 To what extent have you evaluated your job performance against personal standards rather than comparing it with what others do?	4.028	.894
Q3 To what extent have you outlined ways of accomplishing jobs without waiting for your boss?	4.056	.939
Q8 To what extent do you help co-workers with projects?	4.197	.821
Q11 To what extent do you look for opportunities to interact with influential people in your organization?	3.676	1.106
Q13 To what extent have you made suggestions to others even though they may disagree?	3.761	1.259
Q16 To what extent have you accepted a job assignment for which you have little or no expertise?	2.886	1.303
Q18 To what extent have you designed better ways of doing your work?	4.214	.815
Q20 To what extent do you set difficult but not impossible work goals?	3.657	.946
Q21 To what extent do you take the time to do the best possible job on a task?	4.343	.679
Q23 To what extent do you reward yourself when you complete a project?	2.929	1.243
Q25 To what extent do you believe other people when they tell you that you have done a good job?	3.571	.986
Q26 To what extent do you accept compliments rather than discount them?	3.471	1.126

The frequencies showed that radio personalities largely had career resilience from a moderate to a very large extent. However, three questions had respondents answering anywhere between a very small extent to a very large extent with proportionately the same percentage of responses. These questions asked to what extent he/she has: accepted a job assignment for which he/she has little or no expertise (question 16), rewarded him/herself when a project is completed (question 23), and he/she accepts compliments rather than discount them (question 25).

Discussion

Research questions one through six provided the basis for the phone interviews. Primarily, the interviews provided support for Herzberg's Two-Factor Theory and Vroom's Expectancy Theory. The interviews discovered that radio personalities strive for quality work, recognition, a specific market size, and enjoyable job duties. This corresponds to Herzberg's Two-Factor Theory that states that work itself, recognition, and advancement are motivators within the workplace.

The discouraging factors that radio personalities felt were job instability, limited job openings, communication breakdowns with management and that success in the industry is "all in who you know." The response dealing with communication breakdowns agrees with Herzberg's Two-Factor Theory that sees supervision as a dissatisfier in the work place. However, job pursuits are the focus of the remaining responses and are considered a form of

advancement and the respondents saw these factors as a dissatisfiers as well as satisfiers.

Radio personalities felt their talent fell equal to or above the demands of their position, they had specific career goals and hard work, confidence, freedom and creativity would lead them to their goals. This corresponds with Vroom's Expectancy Theory which states that a person must first believe he/she has the ability to do a job, more effort will lead to higher performance and this effort will lead to the desired goals.

Research questions seven through nine were the basis for the questionnaire. The questions tested the extent radio personalities had career resilience, career insight, and career identity. Career insight responses produced no particular pattern for radio personalities. Career insight responses primarily fell from a moderate to large extent. Radio personalities had career resilience largely from a moderate to very large extent. Radio personalities as a whole appear to have career identity and career resilience to some extent while the attribute of career insight is an individual characteristic.

Some questionnaire results did not correspond with the phone interview responses. The interview results showed that radio personalities enjoy co-worker's feedback, and have positive, friendly relationships with supervisors. However, the questionnaire results did not show the majority of radio personalities taking the initiative to discuss talents and performances with supervisors or co-workers. The radio

personalities enjoyed hearing feedback from supervisors and co-workers but would not ask for critical comments. The lack of communication may be due to the fact that rising stars are generally unwilling to share trade secrets with competitors

Conclusion

This study used phone interviews and a mail questionnaire to investigate which factors motivate on-air radio personalities. The subjects consisted of morning and afternoon radio personalities in Indiana. The two methods discovered elements that lead to or prevent job satisfaction.

The interviews found partial support for Herzberg's Two-Factor Theory and full support for Vroom's Expectancy Theory. However, the questionnaire's results did not reject or support Noe, Noe and Bachhuber's study of career motivation.

Implications for Further Study

The results of this study are in no way to be considered a comprehensive examination of work motivation. Large market radio stations need to be researched. Large market radio personalities' responses may alter and enrich a study concerning motivational and career factors of radio personalities.

The sample consisted of morning and afternoon radio personalities within Indiana. This sample touches mainly on the small town radio station. The largest market within the study is Indianapolis, the thirty-seventh market in the country, a medium market size (Bacon's Radio/TV Directory: 1993, 1992). However, if large market radio personalities, such as New York, Chicago and

Los Angeles, were sampled they could produce different results than small towns. Therefore, the results do not represent all radio personalities and should not be generalized beyond the small and medium market radio station.

Although this study was unable to replicate the findings of career motivation of Noe, Noe, and Bachhuber, the theoretical perspective should not be ignored. This study of radio personalities did not replicate their findings; however, studies of other job classifications may support Noe, Noe and Bachhuber's findings.

The results of a similar study could also be more precise through separating variables such as market size, career longevity or gender. For example, women radio personalities with families may not desire moving to larger markets to advance their career. A study that separates motivational factors such as age and gender would assist in analyzing diversity among job attitudes. Acknowledging diversity among individuals in the industry is the first step toward understanding the motivational factors driving the employee.

APPENDIX

Phone Interview Questions

What tangible awards have you received for your current job? From who?

Are you successful in your career? Why?

What personal recognition have you received from others in your current job? From who?

What aspect of your job do you enjoy the most?

On a scale from 1 to 100, how much responsibility has been given to you in your job?

On this scale what amount of responsibility do you want at your job?

To what position do you ultimately aspire?

Can this be achieved at your present station? Market? Why or Why not?

What has encouraged or discouraged you in your quest for advancement?

Do you feel your talent has grown while working at this station? Why or why not?

Do you feel your talent/abilities is (inadequate to, equal to, above) the demands of your position?

What company policies or procedures have encouraged your growth?

What is the title of the position you report to?

How often do you have contact? What type of feedback do you receive: oral, written, other?

Is this the amount and type of contact you would like with this person?

Describe in one word your relationship with your supervisor.

Do you feel adequately compensated for the work you do? Is this through salary and/or fringe benefits?

In one word describe your relationship with your coworkers.

In what ways do your coworkers help your job?

What do you think the public's perception is of the status of your job?

Is job security important to you?

Does your job have job security? What?

Briefly describe the incident/event which you felt the greatest satisfaction at your job.

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A Theoretical and Methodological Critique of the Principle of Relative Constancy

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Abstract

After 20 years of empirical research, this paper revisits the theoretical assumptions of the principle of relative constancy (PRC). This principle or hypothesis holds that consumers spend a constant fraction of their income on mass media over time (constancy), although they may modify their spending patterns within categories of mass media (functional equivalence). A critique of the PRC literature reveals that whereas the assumption of functional equivalence can be phrased in economic terms, there is no such validation for the assumption of constancy. Methodological factors that may explain why PRC studies have offered conflicting evidence are also discussed.

A Theoretical and Methodological Critique of the Principle of Relative Constancy

Since the now-seminal McCombs (1972)'s "Mass Media in the Marketplace," a growing number of studies have tested the principle of relative constancy (PRC) in and outside the United States. This principle or hypothesis holds that the proportion of income spent on the mass media does not change significantly over time (constancy), although compensatory variations between mass media categories may occur during the same period to leave room for the introduction of new mass media goods/services (functional equivalence). It contributes to the study of mass media and media economics by characterizing the long-run relationship between consumer mass media expenditures and income as constant (or proportional). But despite mass communication researchers' increasing interest in this topic, several important theoretical and methodological questions remain before establishing the PRC as a theoretically-grounded, empirically-determined hypothesis. Taken as a whole, this body of literature has revealed mixed support for the principle of relative constancy, and this begs the question why it is so. But more fundamentally, existing studies have yet to validate the PRC in economic terms and draw connections between this principle and standard economic theory. Unlike the ecology-based theory of the niche, which has been successfully applied to the analysis of competition between mass media industries (Dimmick, 1993; Dimmick & Rothenbuhler, 1984), the principle of relative constancy did not benefit from a solid theoretical foundation when it was initially proposed.

To remedy this gap in the literature, this paper examines whether the PRC can pass the test of economic muster and why constancy studies have produced conflicting results. Such validation, if supported, would strengthen the theoretical arguments of the PRC and would recognize the PRC as a sound economic proposition. This study first reviews the existing PRC literature, then offers a critique of that literature primarily based on microeconomic theory, and

concludes with a discussion of new directions for mass media expenditures research. It focuses exclusively on the evolution of *consumer* mass media expenditures, that is direct consumer spending on mass media-related goods (e.g., newspaper, television set) and services (e.g., cable television).

The Principle of Relative Constancy

Although early studies have investigated the relationship between mass media expenditures and the general economy (for reviews, see McCombs, 1972; Son, 1990), it was not until the publication of a descriptive economic study by Scripps-Howard Research in 1959 that the concept of relative constancy became formally identified. Based on an analysis of mass media expenditures from 1929 to 1957, Charles Scripps, chairperson of the Scripps-Howard Newspapers board, concluded:

If we may suggest one broad generalization, it is that in spite of the increasing complexity of mass communications with the advent of new media, *the pattern of economic support has been relatively constant, and more closely related to the general economy than to the various changes and trends taking place within the mass media field itself.*

The consistency evident in the pattern of economic support for the mass media seems significant. It suggests that mass communications have become a staple of consumption in our society much like food, clothing, and shelter. Its stability in times of economic stress indicates that consumers feel that mass communications is a necessary [sic] of life, although *their selection of media may vary* [emphases added]. (*Economic Support*, 1959, p. 6)

Whereas Scripps offered several stimulating ideas for interpreting the evolution of consumer mass media expenditures in the United States (i.e., constancy, relationship to the general economy, staple of consumption, and inter-media variations), he did not suggest any specific hypothesis or statistical technique to test the viability of such assumptions.

McCombs (1972), and later Wood (1986), elaborated on Scripps' "explicit point of view"

(McCombs, 1972, p. 6), developed hypotheses, and used correlational and regression analysis to test the relative constancy of mass media spending over time. As stated by Wood (1986), a key issue of the relative constancy principle is the interpretation of Scripps' introductory remarks.

Interpretations and Analyses

Constancy of Mass Media Expenditures: In his pioneering work, McCombs (1972) restated Scripps' concept of constancy as follows:

His hypothesis asserts that the amount of economic support provided for mass communication media consistently follows the ebb and flow of the general economy. This means that a relatively constant *proportion* of the available wealth--Gross National Product, for example--will be devoted to mass media. When they have more money [i.e., income], consumers and advertisers will spend more on mass media. When they have less, they will spend less on mass media. The important point is that this ebb and flow follows the general economy, not the competition and technological changes within mass communication industries. (McCombs, 1972, p. 6)

In sum, a key assumption of the relative constancy is that total mass media expenditures will grow or decline *proportionate* to the pace of the general economy. Regardless of income changes, consumers will always devote about the same share of income to the mass media; behaviorally, it is implicitly assumed that they will react fairly quickly to rising or declining income by adjusting their mass media spending accordingly. To test this hypothesis, McCombs and his co-authors correlated categories of media spending with time, controlling for inflation, population growth, and personal income (McCombs, 1972; McCombs & Eyal, 1980; McCombs & Son, 1986). The sign and magnitude of the correlation coefficients (from -1 to +1) indicates the direction and strength of the relationship between mass media expenditures and time, respectively. A perfectly monotonic (i.e., steady) increase and decrease across time would yield a trend¹ of +1 and -1, respectively (McCombs & Eyal, 1980). McCombs (1972) establishes

statistical significance for the relative constancy as follows:

If the probability (p value) of a given r 's being a chance discrepancy from zero is equal to or less than five times in a hundred ($p \leq .05$), the null hypothesis is rejected and the empirically reported value is accepted. But, if $p > .05$ then the empirical value is ignored and the r considered to be zero. (p. 11)

In other words, if the coefficient is significantly different from zero at the .05 level, the trend is considered non-zero. The reverse would support the principle of relative constancy, evidencing "absence of movement over time" (McCombs, 1972, p. 18). Wood (1986) labeled this interpretation of the relative constancy principle the "time-trend constancy hypothesis" because time (i.e., physical time) is the primary predictor.

Functional Equivalence: McCombs also elaborated on the second key element of Scripps' reasoning: functional equivalence (also called inter-media variations). He relied on past research, especially Melvin DeFleur, to hypothesize that consumers will vary in their selection of mass media. In *Theories of Mass Communication*, DeFleur and Ball-Rokeach (1989) use the term "functional alternatives" to describe a complementary relationship between types of mass media that carry the same function; on a broader level, this notion explains how consumers change their patterns of mass media usage over time. "Each of these functional alternatives to the newspaper has eaten into the circulation of the daily press. Each, in some sense, provides news, information, or entertainment in a way that once was the exclusive province of the newspaper" (DeFleur & Ball-Rokeach, 1989, p. 60). Formally stated, the concept of functional equivalence holds that "an entertainment or activity will be *displaced* by the newer one provided it serves the same needs as the established activity but does so more cheaply or conveniently" [emphasis added] (Himmelweit, 1977, p. 12).

McCombs (1972) posits that the sociological notion of functional equivalence is consistent

with the premises of the relative constancy hypothesis. Limited by time and budget, consumers must decide which of the competing media--which serve the same communication function (e.g., news, entertainment)--they should select. For McCombs (1972), functional equivalence is an intrinsic part of the consumer decisionmaking process, whereby consumers make choices among different but functionally equivalent types of mass media after considering their value individually. Consequently, the principle of relative constancy assumes "a tremendous ebb and flow of money among the various media" (McCombs, 1972, p. 6). For instance, an increase in electronic media expenditures would yield a decrease in print media or moviegoing expenditures, but the overall proportion of income devoted to mass media would remain unchanged. To succeed in the marketplace, new communication technologies can only expand to the detriment of old technologies (see McCombs, 1972).

Whereas the constancy assumption is generally tested using inferential statistics, the functional equivalence assumption is checked using plots of mass media expenditure categories.

Wood's Critique: In a watershed article, Wood (1986) identified and discussed three problems inherent in McCombs' analyses. First, because mass media expenditures are treated as time-series data, those data are likely to be serially correlated (autocorrelated); therefore, correlational analysis is an inappropriate statistical technique for testing the constancy assumption of the PRC. If residuals at different points in time are correlated, successive observations will then be related to each other (Ostrom, 1990). In the case of positively or negatively correlated residuals,² tests of significance and R^2 values can lead to erroneous conclusions (Gujarati, 1988). Wood (1986) handled the problem of autocorrelation by first detecting it using the Durbin-Watson test and then modifying the original ordinary least squares regression equation

to eliminate it.

Second, Wood questioned the validity of zero correlation for establishing constancy of mass media expenditures over time. He argued that zero correlation coefficients could conceal substantial variations in expenditures within the analyzed period.

Finally, he recommends using disposable personal income (DPI) rather than personal income. DPI is a more suited variable for PRC studies (i.e., more precise measure of income), because it consists only of private consumption and savings, thereby decreasing measurement error and improving the testing of mass media expenditures-income relationships.

But perhaps more importantly, Wood (1986) presents a second model of relative constancy. The "income-share constancy hypothesis" holds that "when income changes, the share of income spent on media does not significantly change" (Wood, 1986, p. 41). Unlike McCombs' partial correlation approach and the time-trend constancy interpretation, the income-share interpretation does not include a time variable. To test both hypotheses, Wood ran regression analyses using total mass media spending as the dependent variable.³ According to Wood and O'Hare (1991), the constant income-share proposition would be supported if the intercept of the fitted function is *not* significantly different from zero ($C = \beta_0 + \beta_1 Y + e$). If it is statistically significant, there is evidence that media spending as a fraction of income is not constant and that consumers spend an increasing (or decreasing) portion of their DPI on mass media.⁴ For the time-trend constancy, if the coefficient of the time variable is *not* significantly different from zero, holding DPI constant ($C = \beta_0 + \beta_1 \text{time} + \beta_2 Y + e$), this would signify the absence of significant increases or decreases in mass media expenditures and would support the principle of relative constancy.

Research Findings in the United States

After this theoretical and methodological description, what can we conclude about the principle of relative constancy from the existing empirical research? In support of a movement of long-term constancy, some studies have reported that consumers' mass media expenditures have remained relatively stable over several decades (McCombs, 1972; McCombs & Eyal, 1980; Son, 1990; Wood & O'Hare, 1991). However, researchers also found that consumer spending on mass media could deviate noticeably from constancy when they broke down the analysis by decade (Wood & O'Hare, 1991) or more contextually when they considered the impact of successful consumer electronics innovations on total media expenditures (Fullerton, 1988; Glascock, 1993; McCombs & Son, 1986; Noh, 1994; Son, 1990; Wood & O'Hare, 1991). A brief review of U.S. PRC studies follows.

McCombs (1972) analyzed consumer mass media expenditures from 1929 to 1968 and found that the trend for total media spending (in constant dollars per household) was ($r =$) .228, $p = .08$, suggesting near constancy of media spending. Likewise, McCombs and Eyal (1980) found a modest decline in media spending (in constant dollars per household) from 1968 to 1977 (trend = -.324). Several differences within mass media categories were apparent, though. The trend for periodicals (+.832) was opposite to that for books (-.876). The authors considered these disparities as "short-term perturbations" (p. 158) and concluded that "even with a proliferation of audio-visual communication services and devices during the past decade, the historical patterns of spending on print and other mass media remain much the same" (McCombs & Eyal, 1980, p. 158).

But more recent studies have revealed findings that contradict the relative constancy

principle. For example, McCombs and Son (1986) found that consumers increased their media spending between 1975 and 1984 (trend = .652, $p = .057$). Whereas print media expenditures decreased significantly from 1975 to 1984 (trend = -.752), electronic media expenditures increased substantially during that 10-year period (trend = +.802). The authors suggest that the diffusion of video cassette recorders is probably responsible for these deviations from the relative constancy.⁵ McCombs and Son (1986), however, found support for the functional equivalence assumption of the relative constancy principle. From 1975 to 1984, increasing expenditures on cable TV and electronic media were offset by a sharp decrease in expenditures on print media.

Another study reported that innovators and early adopters diverted resources from other media in 1949-1950 to accommodate the price of television receivers (Fullerton, 1988). In regard to the relative constancy principle, the author states:

This sharp and brief interruption of the usual curve expected under the principle of relative constancy need not be taken as an indication that the principle is not generally supported. The fact that the trend line quickly returned to a normal pattern indicates that there is a band of equilibrium within which all media spending tends to remain. The sharp departure from the trend indicates, however, that innovators and early adopters may represent exceptions to the principle of relative constancy. (Fullerton, 1988, p. 82)

So despite these short-term departures, Fullerton (1988) concludes that the results confirm the principle of relative constancy. Furthermore, the finding that some consumers diverted spending from other media to television supports the functional equivalence assumption.

Using regression analysis with 1968-1981 data, Wood (1986) found that the time-trend constancy and income-share constancy hypotheses differed in their results and that mass media expenditures as a share of income fluctuated at different points in time contrary to the constancy principle. The author argued that a long-term regression analysis could mask changes that took

place in specific decades. This statement implies that U.S. mass media expenditures may not be a fully linear function of DPI, but may evolve by bursts perhaps provoked by the successful adoption of new communication technologies.

Testing both the time-trend constancy and income-share constancy hypotheses from 1929 to 1988, Wood and O'Hare (1991) confirmed the long-term constancy of U.S. mass media expenditures for both models. However, they also found that consumers devoted a larger share of their income to mass media, especially new media, from 1979 to 1988 without reducing their spending on print and electronic media.

Using a similar approach, Son (1990) found mixed support for the two hypotheses (see also Son & McCombs, 1993). Before running his regression analyses, he logarithmically transformed and first-differenced the data to eliminate autocorrelation. He found that total mass media expenditures from 1929 to 1987 did not increase as a share of income, vindicating the income-share constancy interpretation. On the other hand, the time-trend hypothesis was not supported because consumer spending on mass media increased over time when DPI was held constant. This study suggests that the introduction of cable TV and the VCR has caused mass media expenditures to rise between 1975 and 1987 (see also Glascock, 1993). Indeed, analyzing the same Department of Commerce data from 1929 to 1974, Son (1990) found support for both relative constancy models.

Research Findings Outside the United States

Only two PRC studies have been conducted outside the United States. Werner (1986) found that Norwegians' mass media expenditures were relatively constant from 1958 to 1982 and grew more slowly than expenditures on other leisure and educational activities. She concludes

that these findings support the principle of relative constancy. However, the author's assessment stems from a description of six household expenditure surveys in current prices, and not from a genuine analysis of aggregate media expenditures in constant prices. No formal testing of the relative constancy principle using either correlational or regression analysis was performed.

Dupagne (1994) tested both the income-share constancy ($C = \beta_0 + \beta_1 Y + e$) and time-trend constancy ($C = \beta_0 + \beta_1 \text{time} + \beta_2 Y + e$) hypotheses in the United Kingdom, applying regression techniques (generalized least squares estimation) to consumer mass media expenditures from 1963 to 1989. The analysis confirms a long-term constancy in mass media spending, regardless of variations in disposable personal income and the passage of time. But the results also showed that, in the 1980s, U.K. consumers devoted a greater share of their income to the mass media, largely due to the introduction of video hardware and software. Thus, both U.S. and U.K. consumers spent an increasing share of their income on new media in the last decade.

Critique of the Relative Constancy Literature

It is clear that the PRC studies reviewed here, especially McCombs (1972) and Wood (1986), have generated fresh ideas and proposed new methodologies, all contributing to refine the analysis of mass media expenditures. But despite this pioneering empirical work, several important theoretical and methodological concerns remain. For instance, recent research has done little to investigate new theoretical viewpoints about the relative constancy or link it to a particular economic or consumption theory; instead it has mostly relied on statements made by Scripps in 1959. However, Scripps did not really develop a conceptual framework to support his position. We are then left with a proposition with little theoretical foundation. Another

concern emerging from the literature review relates to the great variability of the findings. Whereas the assumption of functional equivalence has gained ample descriptive support in PRC studies, the statistical evidence in support of the assumption of constancy has been mixed. Why is it so? This section will address these and other theoretical and methodological issues.

Theoretical Issues

Recently, Demers (1994) has questioned the relative constancy's assumptions of *fixed* mass media expenditures and time over the years. He contends that "there is no theoretical reason to justify the argument that spending on mass media should remain relatively constant through time, even if empirically it appears to have been that way" (p. 32). The author maintains that the proportion of income spent on mass media would have increased over time, had the mass media, like other goods, been widely available to the public prior to the 20th century. He states:

Although it may be true that the proportion spent has remained relatively constant during the 20th century, a longer historical view naturally would force one to conclude that it has increased. The reason is simple: For all practical purposes, only during the 19th and 20th centuries have consumers and advertisers spent money on mass communications because mass media were not available before then. Mass media are the product of an urban, industrialized society. Thus, a long-term view suggests that relative spending on media and advertising has increased, albeit the trend need not take a monotonic form. (pp. 35-36)

In his second criticism, Demers (1994) recognizes that "time is a limited resource" (p. 36), but argues that "there is little evidence to suggest that time spent with media has reached a threshold or has remained fixed or stagnant" (p. 36). Citing several studies, he suggests quite appropriately that consumers have expanded the amount of time spent on the media in the last decades. But then he contends that if we accept the assumption that increasing time spent on the media translates into increasing mass media expenditures, consumers, contrary to the

principle of relative constancy, should devote a greater proportion of their income to the mass media.

Demers' first criticism is, of course, untestable because mass media is a fairly recent consumption category, compared to food or housing. We will examine the notion of constancy as a valid economic proposition later in the paper. The second criticism warrants some discussion, because it raises the important question of time ceiling.

Time Ceiling: To justify the relative constancy of mass media expenditures, McCombs (1972) contends that time and income are scarce resources that constrain the growth of consumer mass media expenditures. His first point involves the scarcity of time--time spent on the mass media cannot be extended *ad infinitum*:

For a time the consumer can increase the amount or the number of goods enjoyed per time unit. He sips his martini, scans his newspaper and listens to the stereo simultaneously. But there must be some limit. Indeed, signs of the limit already are appearing. We are already in the age of half-read and unread newspapers. (McCombs, 1972, p. 62)

In other words, consumers will reach a time ceiling or threshold at which point they will no longer be able to accommodate additional mass media activities, given their time allocation to leisure. McCombs' argument implies that although the amount of time spent on the mass media can be extended in the short term, it cannot be stretched beyond a certain level in the long term because it is limited by the time devoted to other daily activities, such as working, sleeping, and eating. Even if average consumers work less in the decades to come, or even sleep less, time devoted to non-media-related activities cannot be indefinitely compressed within the notion of 20th-century Western lifestyle. Unless radical changes occur, Western consumers will continue to spend a major part of their day working, eating, sleeping, doing household chores, and the

like.

Empirical research shows that leisure time or time spent on the media in the United States has risen since the 1960s (see Hamilton, 1991; Hornik & Schlinger, 1981; Ogan & Kelly, 1986; Robinson, 1981, 1989; Vogel, 1990), although this trend may have attenuated in the late 1980s (Robinson, 1989; Son,⁶ 1990). But should we automatically posit that this increase in time will cause mass media spending to increase as Demers (1994) seems to suggest? The evidence on the relationship between increasing mass media use and increasing mass media spending has been mixed. Whereas Wood and O'Hare (1991) found that U.S. consumers increased their share of income spent on the mass media, especially on new media (e.g., cable and VCR) in the 1980s, Ogan and Kelly (1986) found that respondents did not report spending much money on these new communication technologies. More importantly, Ogan and Kelly's findings showed no evidence of a relationship between the amount of time respondents reported to allocate for mass media use and the amount of expenditures they reported to spend on these media. Whether these different conclusions are due to methodological variations or other factors remains to be determined. Wood and O'Hare (1991) used secondary aggregate data from the Department of Commerce; Ogan and Kelly (1986) relied on primary survey data collected in Indianapolis.

Although McCombs (1972) clearly perceives time as the ultimate constraint on mass media expenditures, a second related reason for advocating the principle of relative constancy is limited income. He states:

If indeed the goals or needs of each consumer are fixed, a voluntary consumption maximum eventually has to be reached. As income grows, more and more wants will be gratified. Ultimately, the utility of additions to income and, especially consumption, will be zero. It can be argued, of course, that the tremendous growth of mass communication--growth perhaps constrained only by the consumer's ability to finance it--refutes this notion of fixed wants. (McCombs, 1972, p. 62)

While McCombs alludes to some economic principles (e.g., time scarcity, income scarcity) to rationalize the principle of relative constancy, rather than just taking it for granted based on the pattern of empirical findings, he and other researchers fail to expose explicitly the connection between economics and the principle of relative constancy. Wood (1986) mentions in passing the relevance of the Engel law for the income-share constancy hypothesis, but he provides little explication why it should be so. This is the most fundamental weakness of the existing literature: a lack of any microeconomic justification for the principle of relative constancy as a theoretically-driven economic proposition. So far arguments for or against the constancy have originated from the mass communication literature. Given that the principle of relative constancy describes an economic relationship between consumer mass media expenditures and income, it would seem logical to put the principle of relative constancy and its assumptions to the test of economic soundness. In other words, does economic theory confirm the validity of the relative constancy principle?

Economic Theory - Scarcity: This economic principle holds that "goods are scarce because there are not enough resources to produce all the goods that people want to consume" (Samuelson & Nordhaus, 1989, p. 26). Stated differently, while consumers' wants are virtually unlimited, goods remain scarce or finite in supply even for highly productive societies. Firms can only produce so much. Unlimited wants are also constrained by limited income and time (Eastwood, 1985).

McCombs (1972) is quite correct in using the scarcity rationale for justifying that consumer spending on mass media will not be boundless. But scarcity--constraints on time, income, and supply of goods--does *not* imply that consumers will be forced to spend a *constant*

fraction of their income on a particular good (e.g., beef, light bulb, newspaper) or consumption category (e.g., food, housing, mass media). Such assumption does not necessarily hold up over time, at least in the United States. Magrabi, Chung, Cha, and Yang (1991) report that consumer spending on food has decreased dramatically since the beginning of the 20th century; that budget share spent on housing has barely changed from 1901 to 1987; and that households have spent less of their budgets on apparel but more on transportation over time. Rather *the consequence of scarcity* is that consumers are compelled to make choices in their daily life based primarily on income, time, and preferences.

How consumers behave and purchase goods given these constraints falls under the purview of demand (or consumer behavior) theory within microeconomics. Demand theory assumes that consumers are rational--that is, they seek to maximize utility (i.e., total satisfaction derived from the consumption of goods/services) subject to various constraints (e.g., income, price of goods, time) (see Eastwood, 1985). The next logical step in this economic exposition is to determine whether demand theory can apply to the constancy and functional equivalence assumptions.

Economic Theory - Engel Law: The relative constancy hypothesis assumes that the proportion of income devoted to the mass media will remain unchanged over time. Regardless of variations in income levels, this percentage will always be the same value, say 3% (this is the thrust of the income-share constancy hypothesis). If this percentage is fluctuating--say 5% the first year, 2% the second year, and 8% the third year--the pattern observed would be evidence against the principle of relative constancy. Another way to state the same idea is to say that mass media spending and income covary--that is mass media expenditures do not change

significantly relative to income. When income increases by 1%, we would expect mass media expenditures to increase by 1% as well. As McCombs (1972) pointed out, for the constancy hypothesis to be supported, mass media expenditures and income would be expected to move together--proportionately to each other. As income rises, consumer spending on mass media should also increase (and vice versa). But is McCombs' reasoning congruent with the Engel law (or curve), the traditional microeconomic model of consumer choice that addresses consumer responses to changes in income?

Simply stated, the Engel law raises the following question: Assuming that the price of a good X is fixed, how many Xs would be consumed for a variety of incomes? The Engel law is tied to two important concepts, the budget line and the indifference curve, each deserving some development. In standard economic terms, consumer behavior is driven by the interaction of preferences (indifference curve) and opportunities (budget line). Based on these conditions, consumers can make choices. The budget line shows which baskets of goods consumers can afford to buy, given prices and income, whereas the indifference curve depicts consumers' preferences or tastes regardless of whether they can actually purchase those preferred goods (see Landsburg, 1992). As a general rule, a change in income (increase or decrease) will produce a parallel shift in the budget line. To determine consumer choices, we must draw the indifference curve and the budget line on the same graph. Assuming that consumers are rational (i.e., they behave in such a way to improve their welfare), they will then select the basket at the point where their budget line is tangent to an indifference curve. This point, the consumer's optimum, is the most desirable basket of all baskets on the budget line (see Figure 1 for an illustration).⁷

Generally, Engel curves exhibit an upward slope (Landsburg, 1992). As consumers' income increases, they tend to buy more of all goods. For normal goods, it is indeed the case. A "normal" good (also called a superior good) is "a good that the consumer chooses to consume more of when his income goes up" (Landsburg, 1992, p. 95). For instance, with rising income, it is likely that consumers would purchase more consumer electronics products. On the other hand, a good is said to be "inferior" when the consumer chooses less of the good even though his or her income goes up. In this case, the Engel curve will slope downward. For instance, a consumer is likely to consume less margarine or potatoes as his or her income rises.

The Engel curve provides a useful framework for analyzing the evolution of mass media expenditures in economic terms and describing how consumers would adjust their level of mass media expenditures in reaction to income changes. Furthermore, it can be directly linked to the income elasticity of demand which estimates the percentage change in quantity in response to a percentage change in income, thereby enabling researchers to classify mass media goods into inferior goods (income elasticity $a_i < 0$), necessity goods ($0 < a_i \leq 1$), and luxury goods ($a_i > 1$).⁸ The Engel law does *not* stipulate, however, that the relationship between expenditures on a good and income ought to be proportional or constant.

Economic Theory - Constancy: Earlier in this section, Demers (1994) was quoted to state that "there is no theoretical reason to justify the argument that spending on mass media should remain relatively constant through time, even if empirically it appears to have been that way" (p. 32). In view of the foregoing economic discussion, we must conclude that he is right. The constancy assumption of mass media expenditures has no economic foundation. The Engel law/curve would suggest that increasing or decreasing changes in income translate into

corresponding changes in mass media spending, but it does not imply that the share of income on mass media should be a constant. In hindsight, few economists would hypothesize a constant relationship between income and expenditures on a good over time, whether this good is inferior, a necessity, or a luxury, because they would have to assume that *no* variation exists around the mean value--an unlikely prospect. For the constancy assumption of the relative constancy, we are then left with previous empirical results for guidance. But that does not mean that the entire PRC is atheoretical--in fact, as discussed below, the assumption of functional equivalence is supported by economic theory.

Economic Theory - Functional Equivalence: The concept of functional equivalence can be explained in economic terms by relying on the previous discussion. Because wants are limited by such scarce resources as time and income, consumers must choose among alternatives. They must reconcile their ability to buy (budget constraint) and their willingness to trade (indifference). Let us suppose that consumers enjoy a fixed budget for the mass media and, for the sake of argument, that there are only two media goods, newspaper and radio set. The ability to purchase media goods will be determined by the budget share devoted to the mass media and the prices of newspapers and radio sets. Assuming that consumers spend all their fixed budget on the mass media, the only way to buy more of radio sets would be to buy less of newspapers (see Eastwood, 1985). Within the budget constraint, market prices (relative prices--e.g., how many newspapers consumers can purchase for a radio set) determine at what point consumers will substitute units of newspapers for units of radio sets or vice versa (marginal rate of substitution). A key assumption of consumers' willingness to trade (preferences) is that the locus of all bundles (all combinations of two goods) on a particular indifference curve

implies that consumers derive the same overall level of utility. So it is quite possible for consumers to substitute more radio sets for newspapers and still obtain the same degree of utility.

The concept of functional equivalence demonstrates why consumers alter their mix of mass media goods assuming a fixed mass media budget. Functional equivalence can serve as a useful theoretical point of departure to predict and analyze the pecuniary impact of new communication technologies on traditional technologies (see Noh [1994] for a discussion of functionality of VCR technology).

Methodological Issues

We could wonder why some studies reviewed in the first section offer conflicting results. Second only to lack of theoretical justification, the issue of multiple constancy conceptualizations muddles the results even further and casts more doubts on the validity of that assumption. As indicated in the literature review, the principle of relative constancy can be conceptualized and estimated in various ways and at different levels of sophistication. Although it can be beneficial to use a multi-model approach to test the relative constancy from various perspectives, a lack of a primary model can be confusing, especially if income-share/time-trend interpretations produce different results (Wood, 1986). If those two models are on equal footing and differ in their findings, then how do we conclude there is support or non-support for the principle of relative constancy? Which interpretation is better? So far we lack a unified operationalization of the constancy assumption. Future empirical research should establish at the onset which model is the *primary* test of the constancy hypothesis and provide a rationale for this decision.

Four other factors may explain these discrepancies (see Son, 1990): DPI versus PI;

correlation versus regression; short-term constancy versus long-term constancy; and the handling of serial correlation. The rationale for using disposable personal income and regression analysis, instead of personal income and correlational analysis, has already been exposed above. But the fourth and fifth reasons deserve some explanation. Son (1990) has argued that running analyses with such a small sample size as 10 observations may lead to different findings than running the same analyses with 50 observations. Indeed, studies using more than 25 observations uphold the principle of long-term constancy (Dupagne, 1994; McCombs, 1972; Son, 1990; Wood & O'Hare, 1991). However, for analyses with 10 observations, decreases or increases in media spending--which result in deviations from the relative constancy--often happen (Dupagne, 1994; McCombs & Son, 1986; Son, 1990; Wood & O'Hare, 1991). Statistically, analyses with only 10 cases invite criticism because the sampling error is very large. McCombs and Nolan (1992) have critiqued Wood's approach to break down the constancy analysis per decade: "One can dismiss these departures from constancy as random variations in small data sets ($n = 10$) given the arbitrary division of the data into sets without any underlying historical unity in terms of mass communication" (p. 47). Ironically, McCombs has analyzed 10-year mass media expenditures series on two occasions (McCombs & Eyal, 1980; McCombs & Son, 1986) without necessarily providing an adequate justification for selecting starting and ending data points the way he did (McCombs & Eyal, 1980). Whereas in theory, collection of expenditure data must depend upon historical and economic considerations, in practice it is often the availability of data that guides the data-gathering process for these secondary analyses.

Yet, McCombs and Nolan (1992) have a point here: It is important to ground mass media expenditures analyses in a relevant historical context. If communication researchers present a

compelling reasoning for selecting their sample of years the way they do, they make it more defensible to use a small number of observations because the period under scrutiny may exhibit certain unusual media-related or general spending characteristics that are worth statistical exploration. For example, several constancy analyses have isolated the period from the late seventies to the eighties, when the diffusion of video hardware and software in the marketplace began, to investigate the evolution of mass media spending during that period (Dupagne, 1994; McCombs & Son, 1986; Son, 1990; Wood & O'Hare, 1991).

A fifth reason for these mixed results might be the way the presence of autocorrelation has been handled. Although Son (1990) and Wood and O'Hare (1991) use the same data sets and regression models, they dealt with autocorrelation differently and arrived not unexpectedly at different results. The specification of a correct model that meets the assumptions of bivariate or multiple regression is essential in econometric analysis. The existing constancy literature has focused primarily on eliminating serial correlation, but has done little to refine models or identify the source of serial correlation. Serial correlation more than anything else means that the model is misspecified and/or that relevant variables might have been left out. If omitted, important variables will be relegated to the error term. To the extent that these excluded variables (e.g., price of radio sets), now part of the error term, might influence variables included in the model (e.g., price of newspapers), a systematic pattern of the residuals might appear, which would indicate a (false) problem of serial correlation (Gujarati, 1988). Unfortunately, mass communication researchers have yet to expand constancy or mass media expenditure models beyond the basic mass media expenditures-income relationship.

Discussion

It is vital to realize from the onset that the relative constancy hypothesis is not an *economic theory* per se; it is a proposition (or a set of generalizations) that originates from the mass media literature, and has been conceptualized and tested as such within the communication discipline. As demonstrated in the previous section, the principle of relative constancy is a fairly atheoretical approach to the characterization of mass media expenditures over time; it is primarily supported by empirical research. Are we then reaching a cul-de-sac or is it possible to ameliorate our understanding of this important topic--mass media expenditures-income relationships--in media economics by investigating mass media spending from an angle other than through the PRC? This section discusses some theoretical and methodological suggestions for future research on consumer mass media expenditures.

Theoretical Recommendations

Constancy: Because the constancy assumption of the PRC is not grounded in any economic theory, one may argue that it should not even be tested. This lack of theoretical foundation should at least signal to communication researchers to consider abandoning (or downplaying) the study of this assumption in favor of more promising theoretically-based mass media expenditures-income models. This is not to say that the testing of the constancy proposition is useless or irrelevant; as exploratory research, it has its role to illuminate potential relationships between mass media spending and income. But the constancy research has limited far-reaching implications due to its lack of proper theoretical grounding and offers few opportunities to advance the subject of media economics theoretically and open new avenues for mass media expenditure research. Since the 1970s, virtually all analyses of consumer mass

media expenditures have been conducted within the realm of the PRC. This paper has reappraised the significance of the PRC in media economics, and suggests if not to sever ties between the PRC and consumer mass media expenditures at least to pay greater attention to alternative models of consumer mass media expenditures.

Future studies should explore other linkages between mass media expenditures and consumption theories. This is where major theoretical contributions to the mass media expenditures research can be achieved. To a certain degree, the principle of relative constancy falls under the broad umbrella of mechanistic Keynesian income-consumption tradition because it assumes that consumers respond immediately to changes in income levels. If we apply the Keynesian macroeconomic theory to the microeconomic context of the constancy hypothesis, the absolute income hypothesis in the long term would suggest a near proportional relationship between DPI and mass media expenditures (see Froyen, 1990). Likewise, Friedman's permanent income hypothesis also assumes that consumers behave in a *backward-looking* fashion as they revise their estimate of permanent income "based on how *last* period's actual income differed from last period's estimate of permanent income" (Froyen, 1990, p. 398). The permanent income hypothesis posits that

the reaction of current consumption to an increase or decrease in current income depends on the individual's expectations about whether the increase or decrease in income is likely to continue in future periods or is simply a windfall gain or loss. Permanent changes in income levels are assumed to directly affect expected consumption, whereas transitory changes are assumed to have no effect on expected consumption. (Doran, 1989, p. 262)

In contrast, when we consider the rational expectations perspective in conjunction with the permanent income hypothesis, we assume that consumers estimate permanent income by using "all information available prior to the current period" (Froyen, 1990, p. 398), thereby forming

forward-looking (rational) expectations. The rational expectations perspective suggests that household consumption follows a stochastic (i.e., random) path (Hall, 1978). Because of the random walk nature of consumption, no current variable but the current consumption level should have predictive power for future consumption. Future work testing the permanent income hypothesis and/or rational expectations perspective with aggregate measures of mass media expenditures and wealth would offer valuable theoretical and empirical insights to predict consumer behavior relative to mass media spending over time.

Functional Equivalence: The principle of relative constancy cannot be completely rejected on theoretical grounds because the functional equivalence assumption can be validated in economic terms. Functional equivalence is an important economic concept (product substitution) that has practical implications for today's electronic media environment. Consumer electronics firms and media companies in the United States and other Western countries are poised to market such innovations as high-definition television and interactive television (as soon as technical issues are resolved). Assuming little expansion of household budgets and time for mass media in the near future,⁹ functional equivalence would suggest that "cannibalizing" among electronic media activities and products might reach its full potential in the 1990s, because of the introduction of new and competing services. For instance, a recent survey conducted by *Broadcasting & Cable* indicated that of all cable subscriber respondents interested in interactive TV (53.8%), nearly half (47.2%) reported that they would drop some existing cable services to offset the cost of interactive services (Jessell, 1994). But such a sweeping conclusion could turn out to be overly simplistic given what we know about the evolution of recent communication technologies. Although cable TV and the VCR were found to be substitutes (Levy & Pitsch,

1985), the VCR did not displace cable TV but rather slowed down its diffusion between 1980 and 1990 (Noh, 1994). In the same vein, preliminary studies have suggested that direct broadcast satellite (DBS) service and cable service are competing products, with cable subscribers switching to DBS for improved signal quality and expanded programming options (e.g., Brophy, 1995). Yet, only a minority of DBS subscribers cancel their cable service after signing up with DBS providers--supposedly to maintain access to local broadcast television signals (Stern, 1995). Future research should build on Noh (1994)'s analysis of functionality of VCR technology and dissects the reasons for this apparent lack of functional equivalence among certain forms of media. We would surmise a priori that this situation exists because those options are *not* functionally identical (e.g., DBS providers do not transmit local television programs). Again, demand theory and literature could prove useful by shedding some light on whether mass media products and services are complements, substitutes, or unrelated.

Methodological Recommendations

The Scope of Mass Media: So far PRC researchers have conducted their studies and collected data within the realm of conventional mass media in which messages are delivered to large contingents of people simultaneously. Mass media industries generally include newspapers, magazines, books, movies, recording, radio, and television. With the increasing importance of on-line services, this textbook definition of mass media is unlikely to be adequate in the 1990s and the next century, however. The growth of such personalized mass media as the VCR and the personal computer and the "demassification" of such conventional media as television, radio, and magazines may render the traditional mass media definition obsolete and may redefine the notion of mass media as less "mass" but more "specialized" outlets. Future

researchers of consumer mass media expenditures should contemplate being more inclusive in their definition of mass media by adding pertinent telecommunication-related categories to their existing category system. For instance, such hardware as home computers and such software as on-line services could qualify as mass media items, because they constitute the main consumer components of the current information superhighway. Perhaps the focus of future mass media expenditures work should be on information technology/services rather than just mass media.

In practice, however, taking into account spending on these and other relevant items is an arduous task because such spending is unlikely to be listed as a separate category in the national accounts of the statistical offices; rather it is likely to be subsumed in the general category of appliances, telecommunication services, or "other," most of which may have no bearing on the mass media. Obviously this problem is not new and constitutes a major drawback of secondary analyses because it prevents researchers from reanalyzing and singling out the data into more discrete sets. The reality of mass media expenditures research is that the availability of data from national statistical offices often steers the scope of mass media expenditures (and hence the definition of mass media), even though researchers would aspire to use more refined data sets. In addition, national accounts departments are more inclined to view private consumption patterns from a macroeconomic than a microeconomic perspective and therefore are less prone to publish an itemized tabulation of consumer expenditures. Researchers are then left with the painstaking task of seeking expenditures data on individual products and services from industry associations or consultancy groups, an option that does not stimulate consistency across data.

Additional Regressors: If we accept the reasoning for shifting emphasis away from the

PRC to other models of mass media expenditures, it is imperative to extend mass media expenditures models beyond a simple mass media expenditures-income relationship, so that we can assess the impact of economic and non-economic predictors on the evolution of mass media expenditures, as well as forecast short-term mass media spending based on the values of those predictors. Whereas the existing PRC research has ignored the potential influences of variables other than income on mass media expenditures, future studies should repair this omission by incorporating such literature-guided independent variables as price, interest rate, and unemployment rate in models of mass media expenditures. If variables that could intervene in the process of consumer spending on mass media are omitted, the mass media expenditure model is likely to be misspecified and produce erroneous estimates.

Static Versus Dynamic Regression: Finally, future studies should develop dynamic regression models to assess whether changes in mass media expenditures react immediately to changes in income (or in other variables) or whether the effect of income is spread over several time periods. A regression model is said to be *dynamic* if it contains a lagged dependent variable; but dynamic behavior patterns are also represented when the model comprises lagged independent variables (Doran, 1989). On the other hand, *static* models, which best characterize the existing constancy literature, are those assuming "an instantaneous adjustment to the new equilibrium values when prices and income change" (Phlips, 1983, p. 155). Empirically, it means that static models do not contain lagged variables (i.e., variables at time-1, time-2...). But in reality, consumption, especially expenditures on such durables as consumer electronics products, often responds to income changes incrementally over several time periods--months or years. Philips (1983) has argued that a static approach to consumption theory does not really

offer a realistic picture of how consumers react to increases in income. In sum, dynamic models should be favored over static models because they open the door to new conceptual avenues of mass media expenditures research (e.g., the testing of the permanent income hypothesis and rational expectations perspective requires the inclusion of lagged variables), as well as new statistical approaches to mass media expenditures modeling (e.g., the use of autoregressive and distributed-lag models).¹⁰

Despite its existing theoretical and methodological shortcomings, consumer mass media expenditures research constitutes a new and promising domain of mass media research. It enables us to better understand the evolution of mass media spending and the interplay between mass media expenditures and other economic variables such as income. It also offers plenty of opportunities for refinement. Some of these were detailed in this paper.

Notes

1. Trends are described as long-term increasing or decreasing movements in a time series (Hanke & Reitsch, 1992).

2. Positive serial correlation, the most frequently encountered type of serial correlation, occurs when "a positive error in one period....[is] associated with a positive error in the next period" (Pindyck & Rubinfeld, 1991, p. 49); negative serial correlation, on the other hand, occurs when "negative errors in one time period are associated with positive errors in the next, and vice versa" (p. 49).

3. Virtually all U.S. PRC studies use national aggregate data from the Department of Commerce. Mass media categories include: (1) newspapers, magazines, and sheet music; (2) books and maps; (3) radio, TV receivers, records, and musical instruments; (4) radio and TV repairs; (5) motion picture admissions; and (6) other admissions (theaters, opera, and entertainment of non-profit institutions). Whereas McCombs and his associates performed correlational analyses using these individual categories as well as a combination of all six categories (total mass media), Wood ran regression analyses using total mass media spending as the only dependent variable.

4. Negative and positive constant terms indicate increasing and decreasing shares of DPI devoted to mass media, respectively.

5. VCRs, radio sets, TV sets, and musical instruments were all included in the electronic hardware category. So this category is actually an aggregate of old and new technologies. Typically, national statistical offices provide aggregate data for categories that include several recreational products. This situation illustrates the difficulty of isolating VCR expenditures from other types of electronic media expenditures and assessing its individual effect on the overall mass media spending.

6. A 1989 survey of 7,154 respondents in the Houston metropolitan area revealed that cable subscribers spent about the same amount of time with the mass media as non-subscribers, supporting the contention that the adoption of cable TV did not lead to a dramatic increase in time spent on the mass media (Son, 1990). Unexpectedly, he also found that VCR owners spent less time with the mass media than non-owners, although time devoted to VCR use was not included in the analysis.

7. Let us assume that the prices of X and Y are kept constant at \$1 and \$2 per unit, respectively. Figure 1.A shows the budget lines for incomes of \$6, \$10, and \$20. With an income of \$10, a consumer can afford (1) 10Xs, (2) 5Ys, or (3) a mix of Xs and Ys (e.g., 4Xs and 3Xs), as long as the sum of his/her purchases does not exceed \$10. When we add the indifference curves, we can draw the consumer's optima for the three income levels (for the sake of illustration let us assume that these tangential points represent quantities of 4, 5, and 8Xs, respectively). For instance, with an income of \$10, the optimal consumption level of Xs would be 5; with an income of \$20, an individual would consume 8Xs. To estimate the Engel curve for X, we report on another graph (quantity of X vs. income) how many Xs individuals consume

for incomes of \$6 (4Xs), \$10 (5Xs), and \$20 (8Xs) (Figure 1.B).

8. Houthakker and Taylor (1970) estimated the short-term income elasticity (η) for various media-related expenditure items in the United States: books and maps, 1.67; newspapers and magazines, 0.38; radio and television receivers, records, and musical instruments, 4.20; radio and television repair, 0.64; and motion pictures, 0.81. To illustrate, an income elasticity of 1.67 for books and maps means that when consumers' income (personal consumption expenditures) increases by 10%, we expect spending on books and maps to increase by 16.7%. Long-term elasticity figures (η') were: books and maps, 1.42; newspapers and magazines, (not reported); radio and television receivers, records, and musical instruments, 2.99; radio and television repair, 5.20; and motion pictures, 3.41. The difference between short-term and long-term elasticities lies in the degree of temporal adjustment needed to respond to income changes. Landsburg (1992) explains: "Following an increase in income, it usually takes time for people to fully adjust their spending patterns. Thus, we can estimate both a short-run and a long-run income elasticity, reflecting an initial partial response to an income increase and the ultimate full response. We expect the long-run elasticity to exceed the short-run elasticity" (p. 109) (see also Thomas, 1987).

9. It was recently reported that the U.S. average household income in the early 1990s declined by \$2,000 from its 1989 level and that consumers had less leisure time in 1989 than in the mid 1980s (Robichaux, 1993).

10. Whereas an autoregressive model includes one lagged *dependent* variable among its predictor variables, a distributed-lag model contains one or several lagged *independent* variables on the right side of the equation (Gujarati, 1988).

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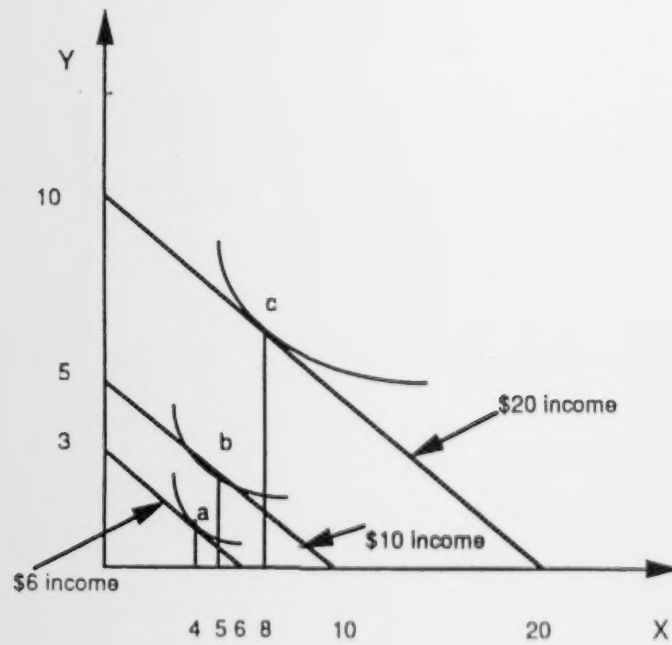
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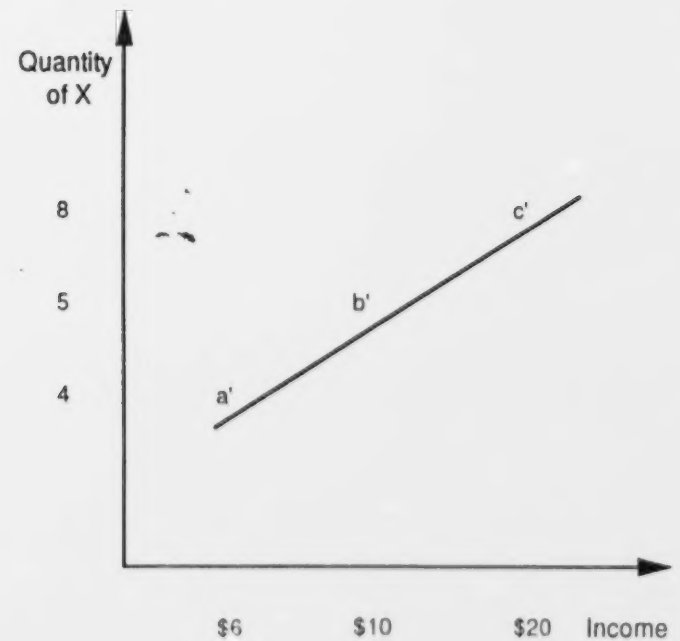
Figure 1

Income Changes and Engel Curve

A. Budget Lines and Indifference Curves



B. Engel Curve



"Radio Station Characteristics and
the Adoption of Satellite-delivered Radio Programming"

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RADIO STATION CHARACTERISTICS AND THE ADOPTION OF SATELLITE-DELIVERED RADIO PROGRAMMING

A. Joseph Borrell, III

The current edition of the M Street Radio Directory reports that nearly 20% of all operating U.S. radio stations use satellite-delivered network programming as their primary programming source. This paper, using a random sample of over 500 radio stations in the United States, offers a careful examination of what type of radio station is likely to use satellite-delivered radio programming. Overall, a station using satellite-delivered radio programming as its format was more likely to be on the AM band, lower powered, serving a smaller community, and under less experienced ownership than a station which did not rely on satellite-delivered programming. The legal form of ownership was also a significant factor in that stations owned by schools or persons were less likely to use satellite-delivered formats than stations owned by corporations or limited partnerships.

Statement of Research Question and Hypothesis

Historically, an important feature of Federal Communications Commission policy has been to license broadcast outlets to individual communities. The reasoning behind this choice was to ensure that local cities across the country had access to broadcast services that were responsive to their community. As the Commission stated in 1965, a basic principle of American broadcasting is to provide "a broadcast service which meets the needs of the public in the area to be served... An important element in such a service is the flexibility to change as local needs and interests change" (Kahn, 1978, p. 331). This policy preference, known as localism, is reflected in various FCC policies. For example, when allocating new broadcast licenses, the FCC awards a preference to potential new owners who live in the area of the proposed station. Requirements for local news coverage and public affairs programming also reflect this localism philosophy.

However, the growth of satellite technology, along with the introduction of sophisticated automation equipment, has changed the character of radio broadcasting. While traditional radio networks supply a few hours a day of programming which local stations intermix with locally-produced programs, today's satellite-delivered format networks often completely eliminate the need for local programming. As Carroll & Davis (1993, p. 259) observed, these satellite-delivered networks combine the services of a traditional radio network (news and advertising) with that of a format programming service (music and entertainment programs). Stations that join these new satellite networks lose an important dimension of their local flavor.

This change in the character of the network-affiliate relationship has important social implications for communities across the country because radio's role as a local information source disappears when stations merely

repeat programming from national broadcast networks. The local information that once came from community-based radio stations is clearly not provided by around-the-clock network programming produced outside of the community of license. While news programming is obviously of central importance in this policy, other cultural ties are weakened by repeated programming. Communities lose a source of local entertainment, and local jobs are usually eliminated at stations that join these networks. Music programming which once catered exclusively to local preferences changes when a station joins one of the satellite-delivered networks that feeds music designed for a national audience. More importantly, says Dr. Rick Wright, a professor at Syracuse University, "radio's greatest strength is its ability to be mobile and to localize. You have to have a live local announcer who understands the sociological context of the market to add that local flavor." (Boss, 1986)

So what are the factors that influence the decision by a station owner to use satellite programming instead of locally-produced programs? The answer to this question is a necessary first step in understanding why so many station owners have joined these networks despite their obligation to serve their local area. By identifying those factors which have contributed to this growth of satellite-fed radio, regulators and lawmakers, representing the interests of the public, can balance these factors with policies that recognize the importance of locally originated programs such as news. Despite the rapid growth of these satellite-delivered networks since 1980, no significant research, by either academics or regulators, has been conducted examining the relationship of these networks and their affiliate stations.

The central question of this paper is, "What type of radio station is likely to use satellite-delivered programming?" The decision to use satellite-

delivered radio programming is usually presented in the trade literature as a desperate effort to save costs for a station that is losing money (Keith & Krause, 1989, p. 255; Bunzel, 1991; Rosen, 1991), but financial distress is merely a symptom of a larger problem, an inability to compete with other more powerful broadcasters. Therefore, the working hypothesis is that radio stations which have less of an ability to compete, due to technical or financial factors, will be more likely to use satellite programming.

Literature Review

Radio has been called the "forgotten medium" of the communications industries. With the ascendancy of television during the postwar period, radio became the overlooked stepchild of mass media research. While the overall acceptance and use of radio is striking, this technology has become an invisible appliance. For example, the average American household owns six radios, and the average American adult spends over three hours a day listening to the radio (Papazian, 1994, p. 421). Radios wake us up in our bedrooms, ride around with us in our cars, and drone on at the office while we work. Radio has a significant role in American life, and advertisers spend millions every year using radio to influence potential consumers of their products. Several books have been written over the years detailing the different aspects of the transformation of the radio industry (for example, Fornatale & Mills, 1980; Fowler & Crawford, 1987; Morrow & Baudo, 1987; Keith & Krause, 1989). However, of these works, only Keith and Krause (p. 255) describe the use of satellite programming, but they cover the subject only briefly. Therefore, most of the background information for this project has been derived from industry trade publications.

There are several major corporate players in the field of satellite-delivered format networks, such as the Capital Cities/ABC-owned Satellite Music Networks and Unistar which is owned by Westwood One. These networks provide live round-the-clock music, news and entertainment programming to affiliates in a variety of programming formats using satellite technology. Although these companies grew rapidly in the 1980's, an extensive literature review found that no academic research has been conducted examining the role that these format providers have had on the radio industry.

Satellite Music Network (SMN) was the first, and is the largest, provider of these real-time deliverers of music programming to stations by satellite. The company now distributes ten different radio station formats to affiliates across the country. The current formats provided by Satellite Music Network include two different versions of country, two rock formats, two adult African-American targeted formats, two adult contemporary formats, and one version each of nostalgia and oldies (Unmacht, 1994, pp. 843-844). For example, SMN's "Stardust" format service consists of highly researched nostalgia (also known as big band) music, interviews with musicians, news and entertainment features ("SMN's Heart and Soul," 1985). A key difference between these new radio networks and the traditional broadcast networks is that these radio format networks are designed to totally eliminate the need for any locally focused programming content such as news.

The innovation of satellite-delivered musical formats blurred the typical distinction between the functions of a radio network and a local station's programming department. Since the 1950's, the accepted notion was that successful radio programming needed to be customized for the local audience. Nevertheless, satellite-delivered programming, like that provided by

SMN, proved that radio networks could provide reasonably popular, standardized long-form programming at low cost across the country. For stations contemplating joining one of the network's formats, the incentives to take the satellite feed are great. The typical radio affiliate of a satellite-delivered network pays little for the programming. In fact, as with a traditional network agreement, the station often can make money from a network agreement because the network may split some part of the national advertising revenue from commercials with its affiliates. However, unlike with a traditional network which merely supplements local programming, with these newer long-form radio networks, a station's cost of programming can decrease dramatically because they do not need to hire staff such as deejays and program directors. Instead, the station owner gains access to the network's stable team of proven and popular air personalities. Automation equipment at the local station smoothly inserts local commercials and legal identifications into pre-arranged breaks in the network programming (Rodrigues, 1984: "Radio Programming," 1986). However, not all satellite-delivered networks require the airing of commercials. Indeed, some networks are explicitly designed for non-commercial radio stations (Unmacht, 1994, pp. 843-849).

Political economy theory recognizes that owners have an economic incentive to provide "the least expensive mix of content that protects the interests of sponsors and investors while garnering the audience advertisers will pay [for]" (McManus, 1993, p. 85). Clearly, economic reasons drive the selection of radio programming. Advertisers, the sole source of revenue for most radio stations, prefer a carefully researched and controlled environment in which their commercials are played (Ang, 1991, pp. 53-56). With careful control over programming on their affiliate stations, satellite-delivered

networks are able to construct a narrow, but national, audience composed of listeners to a particular well-defined format. Radio station audiences, a variable of differing quality across the country, can be standardized and sold on a national basis by a satellite network.

These satellite networks found willing affiliates in stations in danger of bankruptcy. Imprudent levels of debt, together with increasing competition from other media outlets, have led many radio stations into financial distress. A failure to attract sufficient advertising is the major reason that over 400 licensed radio stations are now off the air (Harris, 1994). Radio, unlike most other industries, is uncommon in that, on the expense side of the budget for a station, almost all costs are fixed. There is no additional cost for gaining an additional listener since it costs as much to program a radio station for one hundred or ten thousand listeners. By using satellite programming, an unprofitable station may suddenly be able to turn a profit. As competition for audiences from other media increased and the recession of early 1990's decreased advertiser's spending, more radio stations chose to reduce costs by using satellite programming as their primary programming source (Rosen, 1991).

From the developmental history of satellite-delivered radio formats, satellite programmed radio stations are presented as a "second best" programming decision for stations that take the programming full-time. Unlike in television where the major networks typically affiliate with the strongest station, satellite-delivered radio networks, due to their lack of local content, are considered second-rate programming choices. A larger audience could be attracted by high quality local hosts but these stations, even if they have the capital to pay the high salaries good radio personalities

command, are usually limited in audience appeal by poor facilities. Thus, these stations seem trapped by poor technical facilities and the limited resources of their owners into using satellite-delivered radio programming.

Stations which already had successful programming were unlikely to affiliate with these satellite networks because of the loss of control over local programming that these networks entailed. Furthermore, since the networks sell several minutes an hour of advertising time, as the station's value as an advertising medium increases, so does the value of the time the station devotes to network programs and their advertisements. This link accounts for the differing penetration of satellite-delivered networks between larger and smaller markets. In New York City, the largest market in the country with some 60 stations, only one station, WFME-FM, uses full-time satellite-fed radio programming. In contrast, the smallest defined radio market, Kenai, Alaska, has seven stations serving a year-round population of 22,300. Three of these stations use automated satellite programming full-time while two others use these services on a part-time basis (Unmacht, 1994, pp. 614, 667).

Consequently, competition plays a key role in the decision to use satellite programming but, of course, this competition does not occur on a level playing field. Some organizations, by virtue of larger size, better facilities, or media synergy, have more competitive ability than others. Other scholars, concerned with whether this power affects the value of broadcast services, such as advertising or the resale value of broadcast licenses, have measured the relationship between a broadcast station's competitive ability and what price that station can command in the marketplace.

Owen (1973) tested the effect on television advertising prices when a newspaper and a television station were owned by the same party in the same market. His model attempted to measure the monopoly power accumulated by large media owners. As a proxy for the station's competitive ability, his model measured the market's population, average income, VHF-UHF status, network affiliation, and ownership status. Owen's hypothesis was that stations with better quality programs, larger coverage areas, demographically favorable audiences, and powerful owners would have higher advertising revenues.

Blau, Johnson and Ksobiech (1976, pp. 197-207), in their estimation of TV station economic value, divided their variables into internal and external ones. Internal variables, defined as those variables largely under the control of a station's management, were net broadcasting revenue, size of average audience and amount spent on local programming. Their external variables included broadcast channel, network affiliation, station age, type of ownership, number of competitors and total number of homes in the market. Since obtaining financial information for a sufficiently representative sample of radio stations would be difficult, using the internal variables that Blau, Johnson and Ksobiech obtained is beyond the scope of this study. However, the external variables that this model uses for television are readily available and are also relevant for the sister medium of radio because they measure the coverage area of the station and the financial strength of the station owner which has also been raised as an important factor in the use of satellite-delivered radio programming.

Bates' (1991) study of the price of television time used four categories of variables: station measures, market size measures, market quality measures, and market penetration measures. By station measures, he referred to such

variables as the number of competing stations within a market, station coverage, VHF-UHF status, and network affiliation. The market size measures are related to the number of people within the television market. Market quality related to purchasing power of consumers within those markets. Market penetration referred to availability of cable or UHF capable televisions. Bates' (1995) study of radio station value uses similar independent variables such as market size and quality measures, but to measure a radio station's technical aspects, he uses station power, daytime-only status (for AM), tower height (for FM), year of last sale, frequency, and the number of competing stations. These station attributes "indicate the strength and degree of any station's coverage area. For example, higher powered stations tend to have greater coverage areas, and thus larger audiences, than do lower powered stations" (p. 15). Bates' study of station value emphasizes the importance of a station's signal reach. Station with greater reach have a larger potential audience thus enhancing a station's economic well-being.

From this economic research on broadcasting, it is apparent that specific radio station technical factors play a crucial role in determining the economic prospects of a radio station. Thus, the following technical factors are important to the station's competitive ability. First, whether the station broadcasts on the AM or FM band. A second factor is the station's transmitting power which measures the area that a station's signal can reach. The frequency a station is assigned by the FCC affects how well a station is received by a potential listener. Since FM signals travel in a "line of sight" manner, the height above ground that an FM station's transmitting equipment is placed plays a significant role in determining that station's potential audience. For AM stations, limitations on the number of broadcast hours a

station can transmit also limits its potential audience because, in order to avoid interference, some AM stations are limited to broadcasting only during the daytime. These variables are related to the technical strength of the radio station. They directly measure how powerful the station's signal is. Stations with more powerful signals have a larger potential audience and these stations are able to charge higher advertising prices to potential customers. Of course, having a powerful signal is only useful if there are potential listeners in that coverage area which advertisers want to reach. Stations in sparsely populated areas are less appealing to advertisers than a similar facility located in a big city. Estimating the population in the area served by a radio station also serves to measure the size of a station's potential audience. All of these variables indirectly measure the value of the audience the station may potentially sell to advertisers.

A second group of variables serve to assess the financial situation of a station's owner. Since access to financial information about each station owner is difficult to obtain, an attempt was made to find proxies for this information. The number of stations owned was a useful proxy for the financial strength of the owner. This strength is measured in two ways. The first measure is the ownership of stations in markets across the United States, known as group ownership. A second measure of this strength is the number of stations owned in the same market. An owner who owns more than one station in the same broadcast service in the same geographic area is known as a duopolist. The simple ability to own a number of stations indicates financial strength. There are clear economies of scale in controlling several stations due to cost advantages that come from operating efficiencies in combining otherwise separate organizations. But it has also been hypothesized that

market power leads to lower quality programming and distortions in the advertising market. For example, it has been alleged that group owners receive more favorable treatment than singly owned stations when negotiating with networks and advertisers (Besen & Johnson, 1984, pp. 3-5). Again, the traditional view is that "stand-alone" radio stations have less of an ability to compete with entities that control several stations. Besen & Johnson's (1984, pp. 38-40) economic analysis of broadcasting suggests that an owner of several stations within the same market potentially has more power over programming and advertisers than an owner who controls stations located in different markets.

Regulators have tried to balance the trade-off between allowing stations to be economically efficient but controlling their collusive tendencies. These trade-offs are at the heart of the related debate over the number of stations that should be controlled by the same organization within the same market. Deciding upon the appropriate limits to station ownership has concerned industry analysts and regulators for years (for example, Besen & Johnson, 1984; Bagdikian, 1990). Indeed, Congress and the Federal Communications Commission are currently considering drastic revisions to the current rules over how many radio stations one party should be allowed to own. Before deregulation, a single corporation was limited to owning only a small number of stations. By 1984, the limit was substantially raised to 12 AM and 12 FM stations (Bagdikian, 1990, p. 24). Since 1994, a single corporation can own and/or control up to 40 different radio stations (20 AM's and 20 FM's) of which up to four may be in the same market. Even this limit on the direct ownership of stations has been usurped by loopholes in FCC rules which now allow a media conglomerate to set up lease-type agreements with many stations.

It has been alleged that broadcasters are abusing these agreements to obtain such large market shares that the programming market is no longer competitive. For example, Jacor Communications uses satellite programming on two of the seven stations that it controls in Cincinnati, Ohio. Though Jacor can easily afford to provide local programming on these stations, it uses generic satellite-fed programming on these stations perhaps because no competitor will change formats to provide a similar, but local, format and risk a long programming and advertising battle with the well-financed Jacor (Neff, 1992; Boyer, 1994; Paeth, 1994).

The formal hypothesis is that stations without sister stations, plagued by higher operating costs than stations owned by larger companies, have owners with fewer financial resources and should be more likely to use satellite-fed services. However, with the evidence presented that a large concentration of market share may lead some large group owners to use satellite programming, an interesting alternative hypothesis emerges that large group owners, because of their greater power over program suppliers and advertising markets, also are heavy users of satellite programming.

Another measure of financial strength is whether a station's licensee was a profit-seeking corporation or not. The corporate form of ownership is almost a prerequisite for an organization to acquire large amounts of capital. The corporate structure, with its limited liability and liquid ownership structure, is the dominant form of organization over partnerships and sole proprietorships among American businesses. Partnerships and proprietorships are limited in their ability to raise capital because of the legal requirement that owners are personally liable for all of the losses of the business (Baumol & Binder, 1986, pp. 448-453). Schools and other non-profit

organizations, limited by law to a public-service responsibility, are not permitted to pay a return to their owners and so should also be less able to compete for audience with for-profit corporations. Thus, the dominant form of organization for a radio station is as a corporation. A corporation's ease of access to capital should make corporate owners less likely to use satellite programming than other owners with limited resources.

A final proxy for financial strength was how long the station had been owned by the same party. Several theories suggest why longer tenured owners tend to be financially stronger owners. First, since media management skills are costly to acquire, more experienced owners have an advantage over neophytes in running a station, and stable ownership of a broadcast outlet aids in the development of long-term goodwill with the community and with advertisers (see Rosenblum, 1994). Pechman (1987, pp. 118-119) explains that one effect of the United States' capital gains tax has been to discourage the sale of profitable assets while simultaneously encouraging the immediate sale of unprofitable assets. Applied to radio stations, this principle means that radio stations which have greatly increased in value will be retained by their owners for longer periods of time than less successful stations. With the repeal of the anti-trafficking rule (the FCC rule that required station owners to keep a newly acquired station for three years), stations became easier to trade (Bates, 1989). One rationale for the anti-trafficking regulation was that a station that suffered from frequent changes in ownership would have lower quality local programming. The working hypothesis is that new station owners, burdened by newly acquired debt and with less management experience, have less of a commitment to the radio station's broadcast area than owners

with longer ties to a community (Norback & Norback, 1980, p. 413; Bates, 1989) and, therefore, will be more likely to use satellite-delivered programming.

Formal Statement of Variables

The dependent variable for this analysis will be the use of satellite-delivered programming as the primary programming on a radio station as indicated by the M Street Radio Directory. The choice to use satellite-delivered programming as the main format for an individual station is a dichotomous one, much like purchasing a car. As such, the evidence of the choice is either a yes or no, coded as a "1" and "0" respectively. When coding the data, the use of satellite programming as the primary programming source is coded as a "one" while stations that were predominately locally programmed, but may still use some satellite-distributed programming, were coded as "zero." In cases where stations were indicated as being both locally and satellite programmed, the first designation in the M Street Radio Directory was used. This coding convention was a conservative one in that it probably understated the extent that satellite-delivered programming is used within the industry because the directory coded morning drive programming first which is often saturated with local news and traffic. Thus a station with local morning programming but satellite programming the rest of the day (a common situation) would be coded as locally programmed even if the majority of the day was satellite-controlled. Of course, most radio stations use some amount of network programming. The key feature the dependent variables seeks to measure is when network programming is no longer simply a complement to a locally produced radio station, but has in fact become the programming for the station.

The first five independent variables are related to a technical assessment of the station. Typically, stations with poor signals have a smaller coverage area and therefore a more difficult time being successful. To indicate the technical strength of the station, factors such as the power and frequency of the station need to be taken into account.

The first independent variable was the band the station is located on. This variable was coded so that the variable "FM" would be equal to "one" if the station was located on the FM band but "zero" if that station was on the AM band. AM stations are expected to be heavy users of satellite programming in part due to the fact that FM stations are more popular with listeners than AM stations and AM stations attract an older audience that is less desirable to advertisers (Borowski, 1986).

The second independent variable was the assigned frequency of the station. This variable is particularly important for stations located on the AM band. Stations located near the bottom of the dial, 550 kilohertz AM for example, have signals which travel further than a station with the same power further up the dial such as a station transmitting at 1450 kilohertz AM (Noll, 1982, pp. 34-39). Therefore, higher frequency AM stations should be positively associated with satellite programming. For FM stations, the effect of frequency, measured in megahertz, on transmitting area is less pronounced though some stations at the very bottom of the FM dial are plagued by interference with the audio of television channel 6 (Larson, 1988). Therefore, these lower frequency FM stations may suffer from reduced coverage area compared to similar stations and thus be more likely to use satellite programming.

The third independent variable was the transmitting power of the station. For AM stations, which are generally allowed less transmitting power at night, the higher daytime power was used. A station's transmitting power was coded as a percentage of the maximum power allowed by the FCC, 50 kilowatts for an AM station and 100 kilowatts for an FM station (Norback & Norback, 1980, p. 411). A station with a higher transmitting power has a larger potential audience than a lower powered station. Therefore, in accordance with the hypothesis, this variable should be negatively associated with the dependent variable.

The fourth independent variable, tower height above average terrain in feet, was coded for FM stations only. FM stations with transmitting antennas located at higher levels above average terrain have more coverage area than other stations, and there should be an inverse relationship between tower height and the use of satellite programming.

The fifth independent variable, daytime-only status, was coded for AM stations only. Some AM radio stations are restricted to broadcasting between local sunrise and local sunset in order not to cause interference to other stations, since AM signals can travel great distances at night. This limitation of broadcast time causes a daytime-only AM station to be a less desirable broadcast property and, therefore, a more likely user of inexpensive satellite programming.

The sixth independent variable is the size of the market. There has been a clear difference in the utilization of satellite-delivered programming across different sized markets. Smaller markets have less advertising revenue available per radio station and would be more likely to use satellite technology.

Market population (in thousands of persons), as defined by the M Street editors, was used as the estimate of market size. Unfortunately, many small radio stations do not serve a designated market area so, in this analysis of market size, about a third of the stations in the sample were omitted. Another problem associated with this estimation arises as the definition of market changes from source to source. As Unmacht (1994, p. 611) notes, the very definition of a market is influenced by the stations that pay for the research. For example, Wilmington, Delaware is part of the Philadelphia television market but not part of the Philadelphia radio market.

The last four variables are related to the financial strength of the station's owner.

The seventh independent variable is group ownership status. The formal hypothesis is that small independently owned stations have less capital than large group owners and may be more likely to use satellite programming but a second alternative hypothesis is that this accumulation of capital by large group owners allows them to use satellite programming and not be financially affected. A group owner is defined as an entity which controls stations in several markets across the country. The M Street Radio Directory provides a clear account of which stations are owned by group owners. Group owners are coded as "one" while independent owners are coded as "zero."

The eighth variable is the number of sister stations within the same market. Again, the traditional view is that "stand-alone" radio stations do not have sister stations to spread out the fixed costs of broadcasting and should be more likely to use satellite broadcasting while a second competing theory suggests that owners of multiple stations, with more channels to program and more market power, may also be high users of satellite-

programming. The coding of this variable was achieved by adding up all of the stations owned or controlled by the same party in the same radio market. For this variable, stations linked together by so-called "marketing agreements" were also counted as being under the same ownership. For example, KMEZ-FM, located in Belle Chasse (New Orleans, LA), and controlled by Keymarket, which also owns WWL and WLMG in New Orleans, was coded as having 2 sister sisters.

A ninth variable is legal form of ownership. For many reasons, stations that are not owned by for-profit corporations have a limited ability to raise capital. Corporations, with no fetters on capital accumulation, should be less likely to use satellite programming. The first step in coding was to examine the name of the actual licensee of the station. If the licensee was a person or a small partnership (for example John & Mary Smith), the station was considered to be not a corporation and coded as zero. If the license was held by a corporation (for example, Smith, Inc.), the variable was set to one. Limited partnerships were treated as different from traditional partnerships and were classified as a corporate form of ownership. Limited partners are passive investors, not personally liable for the potential losses, and not involved in the daily affairs of the stations. This distinguished limited partnerships from traditional sole proprietorships or partnerships in which each owner is personally liable for the losses of the station (Rao, 1987, pp. 7-10). Markets have also developed in which limited partnership interests can trade much like traditional stock markets thus eliminating the traditional illiquidity of a standard partnership. Stations that were clearly controlled by non-profit organizations (primarily schools) were considered non-corporate owners.

The tenth, and final, variable is the number of years owned by the same party. Coding of this variable was taken to indicate the last time a meaningful change of ownership took place. The M Street Radio Directory provided the date of sale for most of the stations in the survey. This database was supplemented by information derived from Broadcasting & Cable Marketplace (Onaran, 1992). For a few stations in the sample, no sale had been recorded and so the first on-air date was used as a measure of longevity of ownership. Stations with less experienced management are hypothesized to be heavy users of satellite-delivered radio programming.

Sample

The data set consists of 503 stations randomly selected from the 12,647 stations listed in the 1995 edition of the M Street Radio Directory. Some supplemental data was taken from various editions of the Broadcasting & Cable Marketplace, also known as Broadcasting Yearbook. Stations that were under construction or off the air were eliminated from the sample. Given the dependent variable is limited to one of two states, a logistic regression was used to separate the effects of the independent variables.

The overall sample showed 17% of stations using satellite programming as their primary programming source. This figure differs from the 20% penetration rate for satellite networks given by Unmacht (1994, p. 19) because of this study's more conservative definition of which stations are primary users of satellite programming. For AM stations, 22% of the stations sampled used satellite programming as their primary format compared with only 13% of the FM stations.

Four different regressions were performed. The first was on the overall sample. Due to a lack of market population estimates for some stations located

in rural areas, a second logistic regression was performed with just those stations that had population estimates available. Given the differences between the technical aspects of AM and FM broadcasting, the third and fourth regressions were conducted for FM stations only and AM stations only, respectively. The results of the models were satisfactory in that between 78% and 87% of the statuses were correctly predicted by the equation generated by the independent variables. All of the regressions have highly significant ($p < .002$) Chi-square statistics.

Results

Of the variables tested in the first regression, over the entire set of data, only four variables had significant results ($p < .05$). This means for each of these results, it was calculated that, with at least 95% confidence, there exists a meaningful relationship between the independent and dependent variable. The appendices have full details on the statistical results.

The most powerful predictor of these four variables was the number of years of same party ownership. As number of years of ownership increased, the likelihood that the station would use satellite programming decreased. The second most significant variable was the transmitting power of the station. As the station's power increased, the likelihood of that station using satellite-delivered programming decreased. Corporate ownership was also significant across the entire sample. If a station licensee was a corporation, it was more likely to use satellite programming than non-corporate owners. Finally, whether a station is located on the AM or FM band is important. Satellite programmed stations are more likely on the AM band than the FM band.

In a second regression using only stations located in defined markets, the population of the broadcast market was found to be marginally significant

($p < .06$). As the market size increased, the use of satellite-delivered programming decreased. As with the larger regression, the variables concerning number of years owned, transmitting power, corporate ownership and band were also significant in a similar pattern as the first regression.

Less straightforward were the results that came from the two regressions which examined only FM or only AM stations. In the regression composed exclusively of FM stations, two technical measures, station frequency and tower height, were added. Neither variable was significant. However, a station's transmitting power and the form of corporate ownership were significant, supporting the original hypothesis. The regression indicated that the number of years owned was not significant at the .05 level for FM stations though a simple correlation between the dependent variable and the number of years owned variable shows the hypothesized relationship is significant. Despite a significant Pearson correlation between both daytime-only status and the number of sister stations with the use of satellite-delivered programming, the regression of AM stations confirmed only one significant variable, in which as the number of years a station had been owned by the same party increased, the less likely it was that the station would use satellite-delivered radio programming.

Five variables were insignificant in all of the regressions in which they appeared. The group ownership and the number of stations variables in the regression did not lend support to the theory that satellite programming was confined to small owners. However, there was no support for the competing hypothesis either. No conclusion was reached about whether satellite programming was associated with large owners of multiple stations. While a station's transmitting power did have some explanatory power, a station's

frequency did not. For the FM stations in the sample, the height of the transmitting equipment did not have any relation to the use of satellite programming and, for AM stations, limitations of broadcast hours also was not conclusively associated, either positively or negatively, with the affiliation of that station to a satellite network.

Conclusions

Overall, the most surprising finding was the indication that corporations were more likely to use satellite programming. This result was a revelation since one of the advantages corporations have is their superior ability to raise capital; therefore, corporate-controlled stations would be better able to compete against stations limited to non-profit status or to the personal assets of the owner.

It was less surprising that AM stations would be more likely to use satellite-delivered programming. Given the general distress found among AM broadcasters, this result supports the original hypothesis of satellite programming being associated with weaker broadcast outlets.

The number of years owned variable was in accordance with the hypothesis. Longer-tenured owners are more likely to have locally-originated programs than newer owners. The years owned variable though was not significant in the regression for FM stations only. One possible explanation for this variation is the fact that FM broadcasting is a newer technology. FM stations on average are younger than AM stations and so years of incumbency may be less important on that band.

The transmitting power finding for three of the regressions added support to the hypothesis that satellite programming is largely associated with weakly-powered stations.

The lack of individual variable explanatory power in the AM only regression may be accounted for by the sampling methodology. Since the sample only includes stations that are on the air, stations that have left the air were excluded from the sample. Many low-powered AM stations, especially the daytime-only ones, have left the air due to years of financial losses (Harris, 1994). Therefore, competition has already eliminated many of the weaker players on the AM band and only stronger AM commercial stations still remain on the air, thereby accounting for the lack of variation found in the explanatory variables. A more complete model could have accounted for more of this variation by including measures of market quality instead of simple measures of market population.

Suggestions for Further Research

Since the type of owner was significantly related to the adoption of satellite-delivered programming, further research is indicated in this area. Given the contemporary debate over public broadcasting, a good first step would be to break down the non-corporate category used in the regressions into non-profit owners and personal owners. Non-profit status, while limiting an organization's ability to raise capital, also indicates an organization's orientation to community service. Noll, Peck & McGowan (1973, p. 240) report that television "stations operated by educators do show a marked tendency to broadcast less national programming." Apparently, despite a history of limited resources, non-profit educational television stations have been able to produce local programming. While this research suggests non-profit broadcasters are more likely to produce local programs, identifying these broadcasters and confirming that non-profit educational broadcasters are more likely to be local producers would prove informative for the public debate

over the value of educational public broadcasting, particularly the value of public radio.

A more complete analysis of the spread of satellite-delivered radio programming will have to be conducted to provide guidance in answering the question of whether there exists a link between concentration of ownership and the use of satellite programming. The regressions did not show any significant relationship between satellite programming and group ownership or ownership of a number of sister stations. Thus, no conclusions could be made about whether satellite programming predominated among stand-alone or group operators. A good follow-up to this project would be a more complete analysis that would identify different categories of group owners since this coding treated all group owners the same and only counted the number of stations that an entity controlled in a single market. For example, group owners could be distinguished by the number of stations they control nationwide, estimated percentages of total market revenue, or total corporate assets.

One particularly interesting result was the relation between years of ownership and the use of satellite programming. Since the policy implications of satellite programming are negative, then these results add credence to the theory that the anti-trafficking rule lead to higher-quality, more locally-oriented programming and that the repeal of this rule in 1984 was not in the public interest. Despite the deregulatory trend in communications policy, Jessell (1993) reported that the Federal Communications Commission is still exploring whether the rule should be reinstated. However, while the previous version of the anti-trafficking rule specified a three year holding period, an examination of this data set indicates that only after five years of ownership was there a significant decrease in the usage of satellite programming. For

this sample, stations that had changed hands during the 1990's (owned 5 years or less) were much more likely to use satellite-delivered programming ($p < .0001$) than stations with longer-tenured ownership.

Questions have also arisen over whether an increase in the sheer number of radio stations has led to a corresponding increase in public service by these licensees. Many new U.S. radio stations have been licensed over the past few years. The total count of operating U.S. radio stations has risen from around 8,000 in 1977 (Broadcasting Yearbook) to nearly 12,000 (Unmucht, 1994, p. 19). This increase, if related to the growth of satellite-delivered programming, has important public policy implications since the Federal Communications Commission (FCC) controls the number of channels available to the American public. This research has lent support to the idea that satellite programming is predominately concentrated on lower-powered stations. Since the public policy implications of this type of automated programming are unsatisfactory and in direct conflict with the preference for localism, the FCC's frequency assignment policy could be modified to permit the licensing of fewer, though higher-powered, radio stations. This change would have fewer stations fighting for a limited amount of advertising revenue, thus, potentially improving the profitability of marginal stations and lessening their reliance on satellite programming. Simply increasing the power of all U.S. radio stations, without decreasing the number of stations, would merely lead to higher interference and fewer listeners.

Since advertisers' valuation of the audience is crucial for economic success, more variables concerning the market and its population could have been included. While this model excluded from the population regression stations serving very small communities, Bates (1995) included them by

hypothesizing that in these rural areas, stations served only the county where the station was located. He then obtained population estimates for those counties. Another explanatory variable could have been the quality of the audience in a particular market. For example, average income levels, a figure of great interest to advertisers, could be used to rate the buying potential of a station's audience.

A model which fit the data better could have been constructed if better technical information about a station's transmitting facilities were available. For example, measuring the distance between the location of a radio transmitter and the central city of the radio market would help determine how well any particular station was able to cover its market area. In addition, demographic information about the potential audience in different areas could have been included to measure the value advertisers place on radio advertisements broadcast in different geographic areas of the same regional market.

The long decline of the AM broadcast band shows no signs of ending. As mentioned above, many weak AM stations have signed off the air. Various proposals, such as improving AM transmitting equipment and expanding the AM dial to 1700 kilohertz, have been advanced to improve the borderline situation of these stations. As this thesis has demonstrated, satellite programming is more likely to be found on an AM station than an FM station. Any technical improvements should, theoretically, increase the audience for an AM station and reduce the band's dependence on these types of automated programming. However, given the troubled introduction of AM stereo, small incremental technical improvements will probably have little bearing on a station's programming dilemma or the overall health of AM broadcasting.

The broader conclusions of this study have parallels to recent developments in radio's sister medium, television, and should be further explored given the impact of cable upon viewers. For example, despite the fact that the number of television channels has increased dramatically over the past two decades, most television stations produce only a few hours of local programming a week. Indeed, some newer television networks, such as the Home Shopping Network and Univision, use round-the-clock satellite feeds to program virtually all of the broadcast hours of their local affiliates. Unlike the traditional networks, these newer networks typically affiliate with less desirable newer and lower powered television stations ("When a network is not a network....." 1989).

Of course, many questions still exist concerning the relationship between satellite programming and radio stations. Different methodologies could also be used to explain some of the variation found in the usage of satellite-delivered programming. Surveys or interviews could assess the relationship between an owner's involvement in community service and that owner's use of satellite-delivered programming on his or her station. Replicating Blau, Johnson, and Ksobiech's measures of advertising revenue and programming expenditures for a sample of radio stations would provide direct measures of market power that this thesis only approximates.

Finally, an understanding of the trend found in the usage of satellite-delivered programming would help explain some of the quandaries that this thesis fails to answer. In particular, the question of whether satellite-delivered programming is increasingly a resource for large group owners as part of a market domination strategy could be answered by a time-series tracking affiliation patterns. The design of the model, due to its static

nature, does not directly address issues of how the decision to use satellite-delivered programming is made. Rather, this thesis has simply tested to see whether certain attributes are associated with satellite programming. The data set tested was a cross-sectional one and does not incorporate a full sense of the dynamic changes which have taken place in the radio industry over the past two decades.

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Appendix A Results for All Stations

Table 1
Summary Statistics for All Stations

Variable	Mean	Std Dev	r with dep. var.	Significance
Satellite- programmed	.1710	.3769		
FM band	.5507	.4979	-.1206	.007
Trans. power	18.3346	31.2099	-.1242	.005
Group owner	.4274	.4952	.0346	.439
# of sisters	.9364	.8562	.0276	.537
Corporate owner	.7833	.4124	.1235	.006
# years owned	12.2863	12.9429	-.1620	.0005

n = 503.

Table 2
Logistic Regression for All Stations
Satellite-delivered programming

Variable	B	S.E.	Significance
FM band	-.5591	.2611	.0322
Trans. power	-.0164	.0061	.0071
Group owner	.3367	.2617	.1983
# of sisters	-.0519	.1526	.7336
Corporate owner	.9532	.3882	.0141
# years owned	-.0560	.0147	.0001
Constant	-1.4001	.4312	.0012

Chi-square (6, N = 503) = 44.596, $p < .00005$

- 2 Log Likelihood = 415.576

Model correct prediction = 82.90%.

Table 3
Correlation Matrix for All Stations

	Constant	FM band	Trans.power	Group owner	# sis.
Constant	1.00000	-.40030	.04152	-.15737	-.17582
FM band	-.40030	1.00000	-.21951	-.03287	.08017
Trans. power	.04152	-.21951	1.00000	-.13229	-.12039
Group owner	-.15737	-.03287	-.13229	1.00000	-.25779
# sisters	-.17582	.08017	-.12039	-.25779	1.00000
Corp. owner	-.76306	.11948	-.07859	.01436	-.17286
# yrs owned	-.38655	.17144	.01717	-.03514	.12410

	Corp.own.	# yrs owned
Constant	-.76306	-.38655
FM band	.11948	.17144
Trans.power	-.07859	.01717
Group owner	.01436	-.03514
# sisters	-.17286	.12410
Corp. owner	1.00000	.02980
# yrs owned	.02980	1.00000

Appendix B
Results for Stations in Defined Market Areas

Table 4
Summary Statistics for Stations in Defined Market Areas

Variable	Mean	Std Dev	r with dep. var.	Significance
Satellite-programmed	.1692	.3755		
FM band	.5692	.4959	-.1542	.005
Trans. power	23.4622	34.4771	-.1649	.003
Market pop.	848.4431	1778.6807	-.1130	.042
Group owner	.4892	.5007	.0015	.978
# of sisters	1.0308	.9291	.0646	.245
Corporate owned	.8062	.3959	.1383	.013
# years owned	12.4062	13.2903	-.1295	.020

n = 325.

Table 5
Logistic Regression for Stations in Defined Market Areas
Satellite-delivered programming

Variable	B	S.E.	Significance
FM band	-.7460	.3443	.0302
Trans. power	-.0187	.0076	.0137
Market pop.	-.0006	.0003	.0597
Group owner	.3362	.3344	.3146
# of sisters	.0474	.1756	.7871
Corporate owned	1.1443	.5707	.0449
# years owned	-.0408	.0157	.0092
Constant	-1.3653	.6486	.0353

Chi-square (7, N = 325) = 38.947, $p < .00005$

- 2 Log Likelihood = 256.585

Model correct prediction = 83.08%

Table 6
Correlation Matrix for Stations in Defined Market Areas

	Constant	FM band	Trans.Power	Mkt.pop.	Group own.
Constant	1.00000	-.41264	.07506	-.24285	-.18124
FM band	-.41264	1.00000	-.24350	.19839	-.07488
Trans. Power	.07506	-.24350	1.00000	-.12183	-.10159
Market pop.	-.24285	.19839	-.12183	1.00000	-.09648
Group owner	-.18124	-.07488	-.10159	-.09648	1.00000
# sisters	-.15237	.07422	-.11140	.05734	-.28165
Corp. owner	-.80330	.15236	-.10114	.01706	.10272
# yrs owned	-.32691	.21631	.00951	.05297	-.05105

	# sisters	Corp.own.	# yrs owned
Constant	-.15237	-.80330	-.32691
FM band	.07422	.15236	.21631
Trans. Power	-.11140	-.10114	.00951
Market pop.	.05734	.01706	.05297
Group owner	-.28165	.10272	-.05105
# sisters	1.00000	-.16307	.15907
Corp. owner	-.16307	1.00000	.00677
# yrs owned	.15907	.00677	1.00000

Appendix C Results for FM Stations

Table 7
Summary Statistics for FM Stations

Variable	Mean	Std Dev	r with dep. var.	Significance
Satellite- programmed	.1300	.3369		
Frequency	98.4191	5.9664	.0633	.294
Trans. Power	26.7491	36.9841	-.1593	.008
Tower height	655.5848	577.5840	-.0739	.220
Group owner	.4549	.4989	-.0881	.893
# of sisters	.9206	.9134	-.0841	.163
Corporate owner	.7148	.4523	.1252	.037
# years owned	10.0903	10.5203	-.1209	.044

n = 277.

Table 8
Logistic Regression for FM stations
Satellite-delivered programming

Variable	B	S.E.	Significance
Frequency	.0152	.0355	.6686
Trans. Power	-.0195	.0083	.0194
Tower height	-.0003	.0004	.5130
Group owner	.3747	.4050	.3549
# of sisters	-.3761	.2442	.1236
Corporate owner	1.1780	.5624	.0362
# years owned	-.0445	.0279	.1111
Constant	-3.2761	3.4340	.3401

Chi-square (7, N = 277) = 23.110, $p < .0016$

- 2 Log Likelihood = 190.910

Model correct prediction = 87.00%.

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Table 9
Correlation Matrix for FM stations only

	Constant	Frequency	Trans. Power	Tower Hgt	Group own.
Constant	1.00000	-.98510	.03049	.00841	-.21431
Frequency	-.98510	1.00000	-.02770	-.05019	.18949
Trans. Power	.03049	-.02770	1.00000	-.17622	-.13067
Tower Hgt	.00841	-.05019	-.17622	1.00000	-.08638
Group owner	-.21431	.18949	-.13067	-.08638	1.00000
# sisters	.08765	-.10810	-.11414	-.06332	-.26474
Corp. owner	.19465	-.31928	-.05197	-.07483	-.04873
# yrs owned	-.11709	.03109	-.01964	-.00414	-.02302

	# sisters	Corp. own.	# yrs owned
Constant	.08765	.19465	-.11709
Frequency	-.10810	-.31928	.03109
Trans. Power	-.11414	-.05197	-.01964
Tower Hgt	-.06332	-.07483	-.00414
Group owner	-.26474	-.04873	-.02302
# sisters	1.00000	-.10013	.08091
Corp. owner	-.10013	1.00000	.17916
# yrs owned	.08091	.17916	1.00000

Appendix D

Results for AM Stations

Table 10
Summary Statistics for AM Stations

Variable	Mean	Std Dev	r with dep. var.	Significance
Satellite- programmed	.2212	.4160		
Frequency	1179.9558	304.2842	.0714	.285
Trans. Power	8.0212	17.3599	.0168	.801
Daytime-only	.2345	.4246	-.1441	.030
Group owner	.3938	.4897	.0940	.159
# of sisters	.9558	.7819	.1532	.021
Corporate owner	.8673	.3401	.0829	.215
# years owned	14.9779	14.9926	-.2379	.0005

n = 226.

Table 11
Logistic Regression for AM stations
Satellite-delivered programming

Variable	B	S.E.	Significance
Frequency	.0008	.0006	.1728
Trans. Power	-.0046	.0097	.6329
Daytime-only	-.7413	.4895	.1300
Group owner	.3518	.3610	.3297
# of sisters	.2476	.2139	.2470
Corporate owner	.6320	.5950	.2881
# years owned	-.0543	.0177	.0021
Constant	-2.3640	.9893	.0169

Chi-square (7, N = 226) = 26.384, $p < .0004$

- 2 Log Likelihood = 212.485

Model correct prediction = 78.32%

Table 12
Correlation Matrix for AM Stations

	Constant	Frequency	Trans.Power	Daytime	Group own.
Constant	1.00000	-.79294	-.16943	-.14715	-.22002
Frequency	-.79294	1.00000	.18706	.04079	.15380
Trans.Power	-.16943	.18706	1.00000	.07708	-.08655
Daytime	-.14715	.04079	.07708	1.00000	.07838
Group owner	-.22002	.15380	-.08655	.07838	1.00000
# sisters	-.15266	.05920	-.08561	.02705	-.21767
Corp. owner	-.51537	.03793	-.05561	.05392	.01233
# yrs owned	-.13724	-.03122	.06336	-.05149	-.05366

	# sisters	Corp. own.	# yrs owned
Constant	-.15266	-.51537	-.13724
Frequency	.05920	.03793	-.03122
Trans.Power	-.08561	-.05561	.06336
Daytime	.02705	.05392	-.05149
Group owner	-.21767	.01233	-.05366
# sisters	1.00000	-.19972	.14691
Corp. owner	-.19972	1.00000	-.06127
# yrs owned	.14691	-.06127	1.00000

How Perceived Environmental Uncertainty Influences
The Marketing Orientation of U.S. Daily Newspapers

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The use of readership research to shape editorial content is becoming increasingly common at U.S. daily newspapers. This practice reflects a "marketing concept" of journalism, which emphasizes tailoring a product to customers' wants and needs. Data from 78 daily newspapers suggest that editors' uncertainty about their environment is a major influence on the strength of the marketing orientation of a newspaper. The data also suggest that uncertainty is not affected by structural characteristics of the community in which the newspaper publishes.

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How Perceived Environmental Uncertainty Influences The Marketing Orientation of U.S. Daily Newspapers

The use of readership research¹ is becoming increasingly common in newspaper newsrooms.² As daily newspapers have struggled to arrest a four-decade slide in household penetration³ and readership,⁴ many have turned to readership research to learn what readers say they want and need from their newspaper.⁵ Some papers then base content changes on the research results. This reflects a "marketing concept" of journalism, which emphasizes tailoring a product — the newspaper — to customers' wants and needs.

Adoption of a marketing orientation is not an altogether welcome development in U.S. newsrooms.⁶ Critics say it can lead to trivialized content and can diminish a newspaper's commitment to public-affairs journalism. Journalists have linked a marketing orientation to a loss of control over editorial decision-making and a decline in "professional" standards. Supporters counter that newspapers need to have a strong marketing orientation if they are to survive and prosper. They argue that a strong marketing orientation and public-service journalism are not inherently contradictory.

This paper does not take sides in the argument about whether a marketing orientation is good or bad for daily papers or society and, instead, focuses on forces that produce a strong marketing orientation at a media organization. Drawing off of theories about complex organizations, the paper argues that at newspapers at which editors experience high levels of uncertainty about their organization's environment, a strong marketing orientation is most likely to emerge. It examines this relationship using results of a survey of 167 editors at 78 U.S. daily newspapers. It also explores relationships between community characteristics, environmental uncertainty and a strong marketing orientation. The paper's purpose is to begin "unpacking" the concept of a marketing orientation as it is applied at daily newspapers and to explore factors that influence adoption of a marketing orientation at such papers. It is important to understand this phenomenon because it bears directly on the kinds of information that daily newspapers choose to publish. Though others have written about the development of a marketing orientation at daily newspapers, they have tended to base their accounts on anecdotal experiences of a handful of organizations. This paper goes beyond the anecdote, basing its findings on information collected from a larger group of newspapers in a more systematic way. More broadly, these findings should enhance what is known about the forces that shape the information available to society, which has been a long-standing area of inquiry for media scholars.

Organizations and their environments

For more than five decades, organizational scholars have studied the relationship between organizations and their environments.⁷ Figuring out how to respond to, how to accommodate or how to minimize uncertainty in that environment is a major task of people who manage organizations, be they businesses, nonprofit institutions or government agencies.⁸ The environment is a concern because it is a source of both opportunities and dangers for an organization. Failure to capitalize on an opportunity or to recognize a threat may hurt an organization's performance or, in the long run, threaten its survival. As part of the process of coping with the environment, managers spend considerable time and energy trying to monitor and orchestrate relationships with important social actors in their organization's environment (e.g., end users, suppliers, capital providers) because these relationships can be critical to the organization's success.⁹ One of the managers' goals is to make these relationships more predictable — that is, less uncertain. Frequently, organizations focus on developing predictable relationships with end users (customers) on the assumption that these relationships will influence the organization's long-term success.

A Marketing Orientation

An organization that emphasizes meeting the wants and needs of end users can be said to have a strong marketing orientation.¹⁰ Kotler says the marketing concept "holds that the key to achieving organizational goals consists of determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors."¹¹ It assumes that success is achieved by identifying the markets a firm wants to serve, determining what customers in those markets seek with respect to the firm's products and developing a coordinated program to meet those customers' wants and needs. A marketing orientation can be distinguished from other basic business philosophies that emphasize, for example, production, product quality or sales as central to an organization's success.

At news media organizations, the last decade has been one of great potential uncertainty, particularly for those in the broadcast television and daily newspaper industries. Though daily papers and broadcast TV continue to be the dominant carriers of news, entertainment and advertising, their shares of audiences and advertising spending have eroded.¹² They face formidable competitors (cable television, home video, direct mail and on-line services) in their core

businesses.¹³ And they glimpse new challengers (telephone and computer software companies) on the horizon that would like to do what they do — provide processed information to consumers.¹⁴ Coincident with this changing environment, trade publications for the newspaper industry report a growing emphasis on strengthening those organizations' marketing orientation by emphasizing attention to readers' informational wants and needs. Articles have discussed how to "romance" readers or how to use research to find out what readers say they want or need from their newspaper.¹⁵ Though newspapers have always paid attention to what readers want,¹⁶ the practice of using readership research to shape editorial content has become controversial for journalists.¹⁷ A strong ethic of public service has permeated the occupational culture of journalism, but this ethic has rarely been defined in terms of identifying and meeting *individual* readers' wants and needs.¹⁸ Rather, the public service ethic favors identifying and responding to broad social or political needs, which may or may not coincide with general informational wants and needs of readers or potential readers. Some have framed a marketing orientation as antithetical to public-service journalism.¹⁹ At a minimum, the use of readership (or market) research to shape editorial content is a new way of doing business in many newsrooms.

A strong marketing orientation implies more audience influence on content decisions. It stands in contrast to a "professional" decision-making model, which emphasizes dissemination of information that journalists believe readers or viewers need to know. Under a strictly professional decision-making model, journalists draw upon their expertise and training in deciding what information their audience members must be given to negotiate their world; or, said another way, the journalists control the information-selection process. A strong marketing orientation shifts the focus away from the journalist's expertise and toward the reader's or viewer's informational interests. News decision-making is based more on cues that audience members provide about what they want or think they need from their newspaper or television station. A marketing orientation, therefore, challenges the journalists' prerogative to unilaterally decide what's news. The journalists, in effect, surrender some control over the information decision-making process. This kind of deprofessionalization could be wrenching for an organization, which presumably would not undertake it absent a compelling need.²⁰

The central hypothesis here is that conditions of high environmental uncertainty, particularly with respect to readers or potential readers, provide that compelling need. A strong marketing orientation will tend to emerge at daily newspapers at which editors are experiencing high levels of uncertainty about their environment. Stated another way, as uncertainty about the

organization's environment increases — specifically, uncertainty about readers — an organization will strengthen its marketing orientation. It will do so in an effort to make a crucial relationship — the relationship with its readers — more predictable. Having a predictable relationship with readers is essential to the long-term health of a newspaper because its readers are largely responsible for revenue generation by the organization.²¹ They contribute directly to revenue through purchase of the publication and indirectly to revenue when their attention is re-sold to advertisers.

An additional task of this study is to explore other factors that may contribute both to environmental uncertainty at a newspaper and to a stronger marketing orientation. Here, it is hypothesized that several characteristics of the organization's physical environment will lead to editors perceiving high levels of uncertainty in their organization's environment. These same factors may, as well, directly influence a strong marketing orientation.

Conceptual and operational definitions

- Organization. The definition of organization often is problematic because it's not always clear where an organization ends and its environment begins. For this paper, Scott's conceptual definition of organization is used. He defines organizations as *systems of interdependent activities linking shifting coalitions of participants in which the systems are embedded in the environments in which they operate*.²² Because the focus of this research is news decision-making, organization will be defined operationally as the *news department of a firm whose primary business is publication of a general-circulation daily newspaper*.

- Environmental uncertainty. The concept of environment has received much scholarly attention. The research reflects two general ways of thinking about environment. One conceptualizes an organization's environment as an objective, measurable reality that varies in terms of its wealth, stability, heterogeneity and other so forth. The other conceptualizes environment as a perceptual phenomenon — essentially a mental construction of organizational decision-makers. It assumes that for environmental factors to influence an organization's strategy and structure, those factors first must be perceived by the organization's decision-makers. It further assumes that the perceived environment can (and probably does) differ from the objective environment, though it is the perceived environment that drives decision-making. Though the perceived and objective environments aren't identical, neither are they unrelated. Indeed, the objective environment presumably informs the perceived environment.

Both conceptualizations of environment — as an objective reality and as a perceptual phenomenon — have been used widely in organizational research. A perception-based definition is most appropriate here because this study examines the impact of the environment on an organization's strategic decisions about news and information content. The perceived environment is what managers would take into account in decision-making. Duncan has offered this classic definition of the perceived environment, which is used here: *The totality of the physical and social factors that are taken directly into consideration in decision-making behavior of individuals in an organization.*²³

As a concept, uncertainty is as thorny as environment. Information theorists, decision theorists and organizational scholars have embraced different conceptual approaches.²⁴ Some have treated the concept globally; others have identified specific dimensions or kinds of uncertainty. The conceptual approach used here was adopted from Milliken, and it focuses on uncertainty as a lack of predictability. She defines uncertainty as *an individual's perceived inability to predict something accurately.*²⁵

Environmental uncertainty, then, would be *an individual's perceived inability to predict something accurately about physical and social factors that are to be taken into consideration in the individual's decision-making for the organization.* Perceived environmental uncertainty would be variable concept; that is, it would vary across individuals at a single point in time and across time for a given individual.

These conceptualizations of environment and uncertainty present challenges for research in which the organization is the unit of analysis. Both concepts are defined in terms of perceptions of individuals in the organization. That raises questions about treating environmental uncertainty as an organizational-level concept. Speaking strictly, an organization does not perceive; the individuals who are part of the organization perceive. Organizations are, however, arenas for collective activity, such as joint decision-making. If it is accepted that an organization's environment can affect its decision-making, it seems reasonable to assume that senior managers operate with some jointly held perceptions of that environment, presumably arising from their collective experiences with the organization and its environment. These jointly held perceptions would not be identical but should be similar and would constitute the organization's environment for purposes of strategic decision-making. Indeed, data collected for this study suggest that editors' perceptions of their environment are more similar than different.²⁶

For this article, an index was constructed to assess the degree of environmental uncertainty for a news department. The index was based on the responses of the editors surveyed, aggregated by newspaper.²⁷ Editors were asked to indicate their level of agreement with four statements about the newspaper's "community." These statements probed the degree to which the editors believed they knew what kinds of stories appealed to their community; felt they understood what the community wanted in the newspaper; thought the kinds of people in the community had changed in the last few years; and felt they knew what kind of role the newspaper played in the community. The items were intended as a general measure of the degree to which the editors found their community's informational wants and needs unpredictable. The responses of editors at a given newspaper were averaged and summed to create the index. This created an organizational-level estimate for each paper of its news department's perceived environmental uncertainty.

- Marketing orientation. During the last decade, many newspaper firms (or their parent companies) have dedicated themselves to becoming more customer-oriented.²⁸ As stated above, a marketing orientation is defined conceptually as the *degree to which achieving organizational goals consists of determining the needs and wants of target markets and delivering the desired satisfactions more effectively and efficiently than competitors*. A news department's marketing orientation should be reflected in its willingness to conduct and use readership research to shape editorial content, as opposed to relying solely on the "professional judgments" of reporters and editors.²⁹ Degree of marketing orientation is a variable that could vary across a group of papers at a single point in time or for a single newspaper across time.

Four indices were used to assess different aspects of a newspaper's marketing orientation. Three indices were based upon editors' responses to items asking about various categories of content that newspapers publish. Specifically, the editors were asked to indicate the degree to which readership research had influenced major decisions that the paper had made about publishing that kind of content. Their responses were factor analyzed. The intent was to see if the 19 categories fell into coherent content dimensions. (It seemed possible that some kinds of content might be more likely to be influenced by readership research than others.) Because of weak or inconsistent factor loadings, four of the 19 content categories were eliminated from the final solution. After removing those items, three relatively clean factors emerged from the analysis (Table 1):

- A Traditional Local Information Factor composed of content about local government, other local affairs, neighborhood activities and local events calendars, as well as comics, sports and

"good news." This factor embraces, for the most part, the standard local content of most general-circulation daily newspapers. This is clearly the case for content on local government, local affairs, neighborhood affairs, local events calendars and much sports and "good news." The exception, of course, is comics. While not local, it is traditional fare for most dailies.

- A Traditional Non-local Information Factor composed of content about national and international affairs. This factor embraces the standard non-local content of most general-circulation dailies.

- A Special-Interest Information Factor composed of several kinds of content that trade publications suggest newspapers have begun to emphasize relatively recently — business, science, personal health, personal finance, consumerism and entertainment. Trade publications suggest newspapers are paying more attention to these kinds of content because of perceived reader interest. Often, this content is directed at fairly specialized reader interests.³⁰

Results of the factor analysis were used to guide development of three organizational-level indices on traditional local, traditional non-local and special-interest content.³¹ In creating these indices, responses from editors within an organization were aggregated to create an organizational-level "score" on each of the content-change items — a score for a particular organization on a particular item. These organizational-level indicators were summed to create the indices. Presumably, organizations with the strongest marketing orientation would score highly on all three indices — the Traditional Local, Traditional Non-local and Special Interest indices.

The fourth index assessed the degree to which more-general content changes had been made on the basis of readership research. This index was built from questions that asked editors to assess the degree to which readership research had influenced changes in the paper's graphic design, Page 1 content and beat structure, as well as its influence on decisions to emphasize and de-emphasize recent certain kinds of content. Though these items were not subjected to content analysis, the General Content Change Index was constructed in the same way as the three above.

Community Characteristics: The central relationship tested in this article is that a news department's perceived uncertainty about its environment will lead to a stronger marketing orientation. If support is found for that hypothesis, the questions then become, What are antecedents of uncertainty, and what other factors influence a strong marketing orientation? The hypotheses offered in the analyses that follow suggest that structural community characteristics — characteristics of the organization's objective environment — produce uncertainty. Specifically,

these characteristics are hypothesized to potentially affect levels of perceived uncertainty and marketing orientation:

- The size of the community, measured by its 1990 population. The assumption is that larger communities, which would tend to be complex and heterogeneous, would present a greater source of uncertainty for editors than smaller communities, which would tend to be more homogeneous than larger communities.
- The education level of the community, as measured by the percentage of adults in the community with college bachelor's degrees. The assumption is that more highly educated communities would have more varied informational needs, which would tend to heighten editors' uncertainty about *how* to serve those needs.
- The number of other general-circulation daily newspapers in the paper's home county. The assumption is that in competitive environments, editors would have greater uncertainty about how to effectively appeal to readers, who would have accessible alternative sources of information.³²
- The percentage of the community population that is new to the area since 1985. The assumption is that in-migration would tend to heighten uncertainty because the changing community composition would make its informational needs less predictable to editors.
- The percentage of minorities in the community. The assumption is that because newspaper editors tend to be overwhelmingly white,³³ they would tend to be less able to predict how to serve communities in which large segments of the population have different racial or cultural backgrounds than theirs.
- The degree to which the paper's circulation growth has kept pace with household growth in the community. The assumption is that the failure of circulation to keep pace with household growth would heighten uncertainty among editors about their understanding of the community's informational needs.

Method and Findings

The data analyzed in this article come from several sources. Information about the organization's marketing orientation and its perceived environmental uncertainty is based on results of the mail survey of editors, which was conducted during an eight-week period in 1991. Three-hundred-and-sixty middle- and senior-level editors were contacted at 100 U.S. daily newspaper companies. The papers were selected using standard probability sampling techniques.³⁴ Of the

360 editors contacted, 167 provided usable responses, for an individual response rate of 46.5 percent. These editors represented 78 newspaper firms, yielding an organizational response rate of 78 percent.³⁵ The latter is the more critical figure, as the findings reported here describe characteristics of the newspaper rather than of the individuals working at those newspapers. Information on community characteristics was taken from the 1990 U.S. Census, except for data about circulation performance. That was obtained from the Editor & Market Guide.³⁶

Table 2 shows the means and standard deviations of variables included in the analyses that follow. It also reports the reliability coefficients of the four content-change indices, which ranged from acceptable (General Change and Perceived Environmental Uncertainty indices) to excellent (Special Interest, Traditional Local, Traditional Non-Local content indices).

Path models were used to examine the impact of community characteristics and perceived environmental uncertainty on the four content-change indices. This process was used to estimate the path coefficients. Initial coefficients were computed for just-identified recursive models. The models were trimmed of paths that did not meet or exceed the $p < .10$ significance level.³⁷ Coefficients were re-estimated for these over-identified models. W , a goodness of fit statistic, was computed for each model.³⁸ The models are shown in Figures 1-4. Here is a summary of findings:

- All four models explained a significant amount of variance in their dependent variables, and no model needed to be discarded because the W statistic suggested a lack of fit.
- In all four models, perceived environmental uncertainty had a significant positive effect on a newspaper's marketing orientation, as predicted. That is, newspapers in environments of high perceived uncertainty tended to be those most likely to report basing content decisions on readership research.
- In general, the structural community variables — those indicators of the organization's "objective" environment — did not have a strong impact on perceived environmental uncertainty. The single exception was competition from other daily newspapers. Its effect was positive, as expected, at the $p < .10$ significance level. That is, as the number of other daily newspapers in the paper's home county increased, so did perceived environmental uncertainty.
- In three models, one of the structural community variables had a direct effect on a marketing orientation indicator. In-migration had a positive effect on the use of readership research to guide changes in traditional local and non-local content, and education had a positive effect on the use of readership research to guide changes special-interest content.

Taken as a whole, the results support the central hypothesis of this study — that perceived environmental uncertainty positively affects the strength of the marketing orientation of daily newspapers. As uncertainty about their community increases, editors collectively report a greater likelihood that content decision-making is shaped by results of readership research, which presumably seeks to measure readers' informational wants and needs. This is true for each of the four indices of marketing orientation.

The results also suggest that while community structural characteristics can be associated with a strong marketing orientation, this is relatively rare. Of the six structural characteristics examined, only two — education and the degree of in-migration into the community — directly affected any of the marketing-orientation indicators. In-migration was associated with the influence of readership research on changes in traditional content. Because newspaper readership tends to be associated with the strength of a reader's ties to his or her community,³⁹ this relationship might be expected. Newspapers in areas with relatively large numbers of new residents, who presumably have relatively weak ties to their community, might strengthen their marketing orientation to try to retain their audience. They may need to modify their content to appeal to these newcomers, and readership research would provide guidance on how they might do that. The data used in this study do not indicate how the content at such newspapers was altered — just that it was. An over-time content analysis would give more insight into the nature of such changes. The other important structural characteristic was education, which was associated with the influence of readership research on special-interest content. This linkage is less obvious. It may be that in communities with high education levels, newspapers confront an audience with a more intricate set of informational wants and needs and with a capacity to fulfill those needs using a variety of informational sources. This may stimulate a stronger marketing orientation as the newspaper tries to adjust content to fit those needs. Also, many kinds of special-interest content — particularly that about science, business and personal finance — are complicated, "high brow" subjects that may be more attractive to a highly educated audience.

That said, the direct effect of structural characteristics is modest, and it may be best not to make too much of it. Given that this was a fairly broad group of structural indicators, it would be hard to argue that a newspaper's objective environment tended to influence greatly the development of a stronger marketing orientation. Neither did the objective environment appear to influence perceived environmental uncertainty. Only the fairly crude indicator of competition showed any correspondence with the Perceived Environmental Uncertainty Index, and this was the weakest

reported relationship found among all those tested. Though these findings may be surprising to some, others have noted a lack of direct correspondence between objective and perceived environments.⁴⁰ While no one argues that individuals create their perceived environment from whole cloth, for the objective environment to matter its cues must be perceived and interpreted by an individual. Downey and Slocum⁴¹ argue that a variety of cognitive and social factors intervene in this process to shape an organization member's perception of the environment. These factors could account for the lack of influence that characteristics of the objective environment had on editors' perceived uncertainty about their community. One need in future research is to explore more fully the connections between a newspaper's objective environment, the objective environment as perceived by editors, the editors' level of uncertainty about the environment and factors that influence editors' perceptions about the environment.

In future studies, improvements also need to be made in conceptualization and measurement to gain a stronger understanding of the relationship between uncertainty, the environment and the strength of a media organization's marketing orientation. Specifically:

- A more refined definition of environmental uncertainty is necessary. Milliken has suggested treating environmental uncertainty as multidimensional concept, not a unidimensional concept, as was done in this paper.⁴² She distinguishes among three types of environmental uncertainty — state uncertainty, which pertains to perceived conditions of the environment; effect uncertainty, which speaks to concerns about the potential impact of environmental conditions on the organization; and response uncertainty, which addresses concerns about how an organization might respond to environmental conditions. A more complex conceptualization of environmental uncertainty may yield a better understanding about its effect on development of a strong marketing orientation.

- It may be helpful to treat the environment as multidimensional, too. That is, it may be useful to think of a news department as having several environments — its community of readers or potential readers (as in this study), its firm, its parent corporation, its financial backers. Each group may constitute a component of the department's environment; some may be important antecedents of uncertainty for newsroom managers, others may not.

- A better understanding of factors that intervene to shape a newsroom manager's perception of the environment is also essential. Presumably this would enhance our understanding of the relationship between the objective environment and the perceived environment.

- Methodologically, a broader set of indicators is needed to assess perceived environmental uncertainty. The reliability of the Perceived Environmental Uncertainty Index was marginally acceptable. A refined conceptual definition, of course, should help in the creation of improved operationalizations.

- Finally, exploring content differences between newspapers with weak and strong marketing orientations is necessary to understand the impact that a strong marketing orientation has on information available to society. Much is made of the presumed link between a marketing orientation and public-service journalism at daily newspapers.⁴³ Virtually nothing is known about this connection from systematic study — including whether the link exists at all.

The limitations of this study aside, the results do provide evidence that newspapers differ in the strength of their marketing orientation; that readership research may not influence all content decisions uniformly; and that perceived environmental uncertainty appears to be an important consideration in understanding the development of stronger marketing orientation at daily papers. In those ways, the study does contribute to our understanding about the array of organizational factors that affect how news is manufactured in society today.

TABLE 1

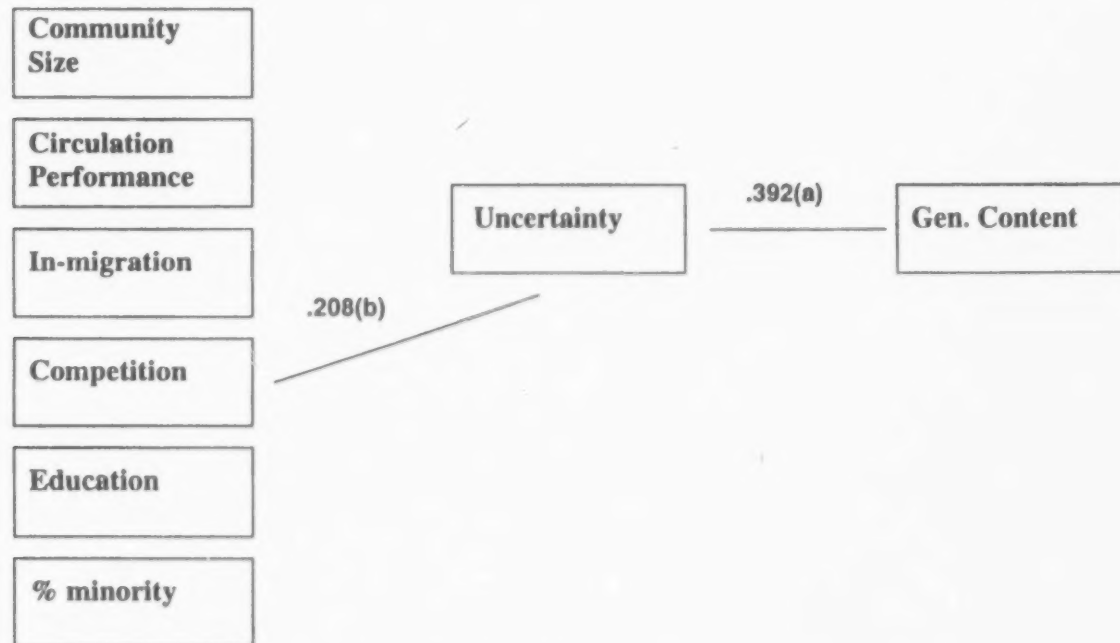
Principal components factor analysis of 15 content categories with Varimax rotation.

<i>Factors</i>	<i>I</i>	<i>II</i>	<i>III</i>
I. Traditional Local Content			
Local government	.864		
Other local affairs	.901		
Sports	.704		.338
Neighborhood activities	.738	.395	
Calendar-local events	.727	.451	
Good news	.611	.314	
Comics	.549		
II. Special Interest Content			
Entertainment		.768	
Business		.722	
Consumer affairs	.317	.594	.345
Personal finance		.828	.307
Science		.708	
Personal health	.330	.811	
III. Traditional Non-Local Content			
International affairs		.376	.869
National government	.364		.871
Variance accounted by factor	52.5%	11.5%	6.9%
Eigenvalue	7.87	1.72	1.04
Total variance = 70.9%			

TABLE 2
Means, standard deviations, alphas (for indices) for variables in path models.

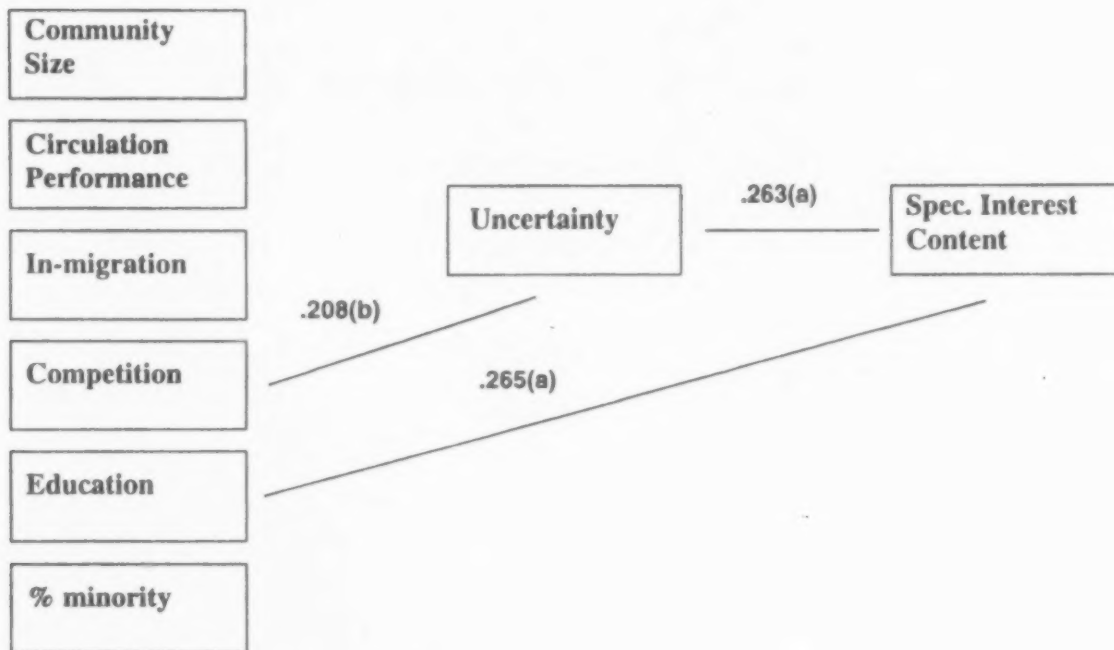
Variable	Mean	SD	Alpha
Exogenous Variables			
MSA/PMSA Population (in 000)	1,795	2,274	NA
% In-Migration in last 5 years	20.4	6.1	NA
Circulation performance in %	-15.6	24.8	NA
Number dailies in county	2.3	2.464	NA
% with B.A.	21.6	6.163	NA
% Minority Population	18.9	11.7	NA
Endogenous, Dependent Variables			
General Content Change Index	11.03	5.019	.73
Special-Interest Content Change Index	2.62	.671	.89
Traditional Local Content Change Index	2.79	.679	.89
Traditional Non-local Content Chg. Index	2.14	.782	.97
Environmental Uncertainty Index	10.31	2.383	.67

Figure 1: Path Model for General Content Change Index.



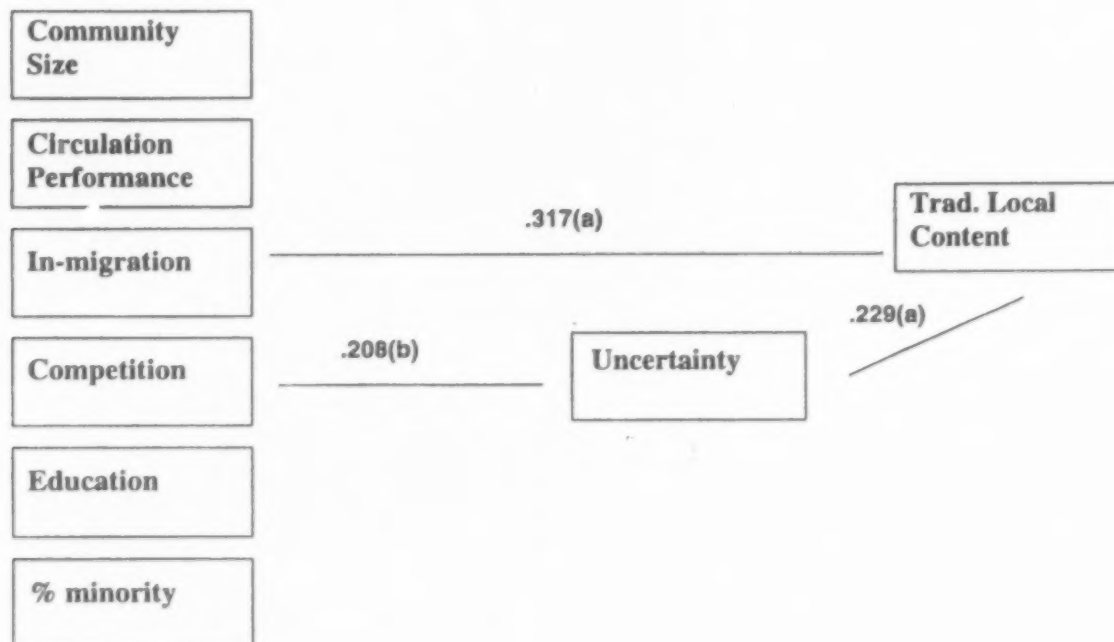
Note: Path coefficients shown. (a) $p < .05$; (b) $p < .10$
Goodness of fit: $W=.066$ @ 1df; null not rejected

Figure 2: Path Model for Special-Interest Content Change Index.



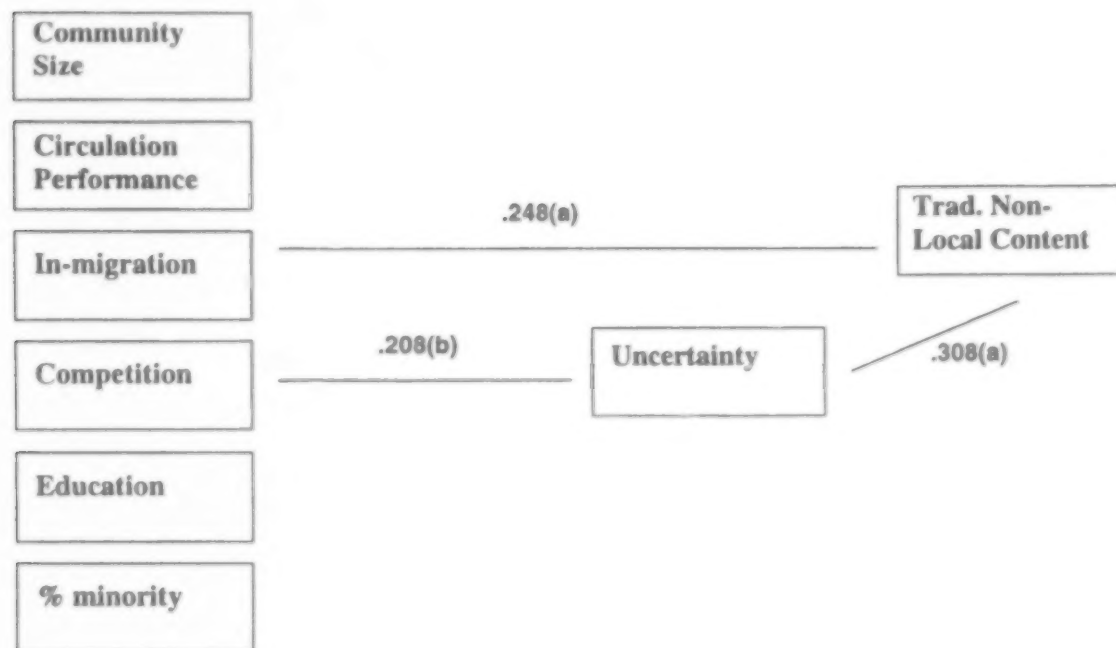
Note: Path coefficients shown. (a) $p < .05$; (b) $p < .10$
Goodness of fit: $W=1.723$ @ 2df; null not rejected

Figure 3: Path Model for Traditional Local Content Change Index.



Note: Path coefficients shown. (a) $p < .05$; (b) $p < .10$
 Goodness of fit: $W=3.184$ @ 2df; null not rejected

Figure 4: Path Model for Traditional Non-Local Content Change Index.



Note: Path coefficients shown. (a) $p < .05$; (b) $p < .10$
 Goodness of fit: $W=3.532$ @ 2df; null not rejected

¹ Readership research is one kind of market research.

² John C. Schweitzer, "Marketing Research in the Newspaper Business," in *Readings in Media Management*, Stephen Lacy, Ardyth Sohn and Robert Giles, eds. (Columbia, SC: Media Management and Economics Division of the Association for Education in Journalism and Mass Communication, 1992), 153-180. Doug Underwood, *When MBA's Rule the Newsroom* (New York: Columbia University Press, 1993), xi-xii, 110, 111-116; John H. McManus, *Market-Driven Journalism: Let the Citizen Beware* (Thousand Oaks, CA: Sage Publications, 1994), 6-7.

³ Don R. Pember, *Mass Media in America*, 6th (New York: Macmillan, 1992), 127.

⁴ Philip Meyer, *The Newspaper Survival Handbook: An Editor's Guide to Marketing Research* (Bloomington, IN: Indiana University Press, 1985), 8-10.

⁵ Larry S. Lowe and George deTarnowsky, "Newspaper Research: A Growing Consultant Opportunity," *Journal of Professional Marketing Services* 10, No. 1 (December 1993), 45-54.

⁶ Underwood, *When MBAs Rule the Newsroom*, 14-25; McManus, *Market-Driven Journalism*, 1-16.

⁷ The environment plays a key role in open-systems models of organizations. For an extended discussion on organizations and their environments, see W. Richard Scott, *Organizations: Rational, Natural and Open Systems*, 3rd (Englewood Cliffs, NJ: Prentice-Hall, 1992), 123-316.

⁸ John Child, "Organizational Structure, Environment and Performance: The Role of Strategic Choice," *Sociology* 6, No. 1 (January 1972): 2-22; Richard L. Daft and Karl E. Weick, "Toward a Model of Organizations as Interpretation Systems," *Journal of Management Review* 9, No. 2 (1984): 284-295; Gregory G. Dess and Nancy K. Origer, "Environment, Structure and Consensus in Strategy Formation: A Conceptual Integration," *Academy of Management Review* 12, No. 2 (1987): 313-330; H. Kirk Downey and John W. Slocum, "Uncertainty: Measures, Research, and Sources of Variation," *Academy of Management Journal* 18, No. 3 (September 1975): 562-578; H. Kirk Downey, Don Hellriegel and John W. Slocum Jr., "Environmental Uncertainty: The Construct and Its Application," *Administrative Science Quarterly* 20, No. 4 (December 1975): 613-629; Robert B. Duncan, "Characteristics of Organizational Environments and Perceived Environmental Uncertainty," *Administrative Science Quarterly* 17, No. 3 (September 1972): 313-327; Barbara W. Keats, "A Causal Model of Linkages Among Environmental Dimensions, Macro Organizational Characteristics and Performance," *Academy of Management Journal* 31, No. 3 (September 1988): 570-598; Christine S. Koberg and Gerardo R. Ungson, "The Effects of Environmental Uncertainty and Dependence on Organizational Structure and Performance: A Comparative Study," *Journal of Management* 13, No. 4 (1987): 725-737; Angeline W. McArthur and Paul C. Nystrom, "Environmental Dynamism, Complexity, and Munificence as Moderators of Strategy-Performance Relationships," *Journal of Business Research* 23, No. 4 (December 1991): 349-361; Edwin A. Gerloff, Nan Kanoff Muir and Wayne Bodensteiner, "Three Components of Perceived Environmental Uncertainty: An Exploratory Analysis of the Effects of Aggregation," *Journal of Management* 17, No. 4 (1991): 749-768; Paul R. Lawrence and Jay W. Lorsch, *Organization and Environment* (Homewood, IL: Richard D. Irwin, 1967); Donald L. McCabe, "The Assessment of Perceived Environmental Uncertainty and Economic Performance," *Human Relations* 43, No. 12 (1990): 1203-1218; Raymond E. Miles, Charles C. Snow and Jeffrey Pfeffer, "Organization-Environment: Concepts and Issues," *Industrial Relations* 13, No. 3 (1974): 244-264; Danny Miller and Peter H. Friesen, "Strategy-Making and Environment: The Third Link," *Strategic Management Journal* 4, No. 3 (1983): 221-235; Frances J. Milliken, "Perceiving and Interpreting Environmental Change: An Examination of College Administrators' Interpretation of Changing Demographics," *Academy of Management Journal* 33, No. 1 (1990): 42-63; Frances J. Milliken, "Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty," *Academy of Management Review* 12, No. 1 (1987): 133-143; Delbert M. Nebecker, "Situational Favorability and Perceived Environmental Uncertainty: An Integrative Approach," *Administrative Science Quarterly* 20, No. 2 (June 1975): 281-294; Robert D. Russell and Craig Russell, "An Examination of the Effects of Organizational Norms, Organization Structure and Environmental Uncertainty on Entrepreneurial Strategy," *Journal of Management* 18, No. 4 (1992): 639-

656; Mark P. Sharfman and James W. Dean Jr., "Conceptualizing and Measuring the Organizational Environment: A Multidimensional Approach," *Journal of Management* 17, No. 4 (1991): 681-700.

⁹ Francis J. Aguilar, *Scanning the Business Environment* (New York: Macmillan, 1967); Daniel F. Jennings and James R. Lumpkin, "Insights Between Environmental Scanning Activities and Porter's Generic Strategies: An Empirical Analysis," *Journal of Management* 18, No. 4 (December 1992): 791-803; Danny Miller, "Environmental Fit vs. Internal Fit," *Organization Science* 3, No. 2 (1992): 159-178; William L. Renfro and James L. Morrison, "Detecting Signals of Change: The Environmental Scanning Process," *The Futurist* 28, No. 4 (August 1984): 49-53; Ram Subramanian, Nirmala Fernandes and Earl Harper, "Environmental Scanning in U.S. Companies: Their Nature and Their Relationship to Performance," *Management International Review* 33, No. 3: 271-286; Henry Tosi, Ramon Aldag and Ronald Storey, "On the Measurement of Environment: An Assessment of Lawrence and Lorsch's Environmental Uncertainty Subscale," *Administrative Science Quarterly* 18, No. 1 (March 1973): 27-36; Rosalie L. Tung, "Dimensions of Organizational Environments: An Exploratory Study of Their Impact on Organization Structure," *Academy of Management Journal* 22, No. 4 (December 1979): 672-693.

¹⁰ Morgan P. Miles and Danny R. Arnold, "The Relationship between Marketing Orientation and Entrepreneurial Orientation," *Entrepreneurship Theory and Practice* 15, No. 4 (1991): 49-65; Philip Kotler, *Marketing Management: Analysis, Planning, Implementation and Control*, 7th (Englewood Cliffs, NJ: Prentice Hall, 1991), 4.

¹¹ Kotler, *Marketing Management*, 16.

¹² Veronis, Suhler & Associates, *The Veronis, Suhler & Associates Communications Industry Forecast*, 8th (New York: Veronis, Suhler & Associates, 1994).

¹³ Veronis, Suhler & Associates, *The Veronis, Suhler & Associates Communications Industry Forecast*.

¹⁴ Wilson P. Dizard Jr., *Old Media New Media: Mass Communications in the Information Age* (New York, Longman, 1994).

¹⁵ M.L. Stein, "Re-establishing Relevance for Readers," *Editor & Publisher*, March 5, 1994, 16-17; Robert G. Picard, "Research and Development Still Misses Its Mark," *Editor & Publisher*, December 19, 1992, 46-47, 56; Tim Triplett, "Marketing Research Guides Paper's Pulitzer-Winning Series," *Marketing News*, May 23, 1994, 1, 5; Mark Fitzgerald, "25/43 Project a Reader Success," *Editor & Publisher*, October 26, 1991, 10, 39; George Garneau, "Reaching 'At Risk' and 'Potential' Readers," *Editor & Publisher*, May 4, 1991, 14-15, 110; M.L. Stein, "Research for the Newsroom," *Editor & Publisher*, April 27, 1991, 15, 18; Mary Alice Bagby, "Transforming Newspapers for Readers," *presstime*, April 1991, 18-25; Gene Goltz, "Reviving a Romance With Readers Is the Biggest Challenge for Many Newspapers," *presstime*, February 1988, 16-22.

¹⁶ Audience interest is often listed as an important news value. See, for example, Melvin Mencher, *News Reporting and Writing* (Dubuque, IA: William C. Brown, 1984), 68.

¹⁷ Underwood, *When MBAs Rule the Newsroom*, xiii-xv.

¹⁸ Commission on Freedom of the Press, *A Free and Responsible Press* (Chicago: The University of Chicago Press, 1947); Stephen Klaidman and Tom L. Beauchamp, *The Virtuous Journalist* (New York: Oxford University Press, 1987).

¹⁹ Underwood, *When MBAs Rule the Newsroom*, 1993; Doug Underwood and Keith Stamm, "Balancing Business With Journalism: Newsroom Policies at 12 West Coast Newspapers," *Journalism Quarterly* 69, No. 2 (Summer 1992): 301-317.

²⁰ For a discussion of this concept of professionalism, see Randal A. Beam, "Journalism Professionalism as an Organizational-Level Concept," *Journalism Monographs* No. 121 (June 1990).

²¹ Jon Udell, *The Economics of the American Newspaper* (New York: Hastings House, 1978), 26.

²² Scott, *Organizations: Rational, Natural and Open Systems*, 25.

²³ Duncan, "Characteristics of Organizational Environments," 314.

²⁴ Duncan, "Characteristics of Organizational Environments," 317.

²⁵ Milliken, "Three Types of Perceived Uncertainty," 136.

²⁶ One way to assess the homogeneity of responses among editors at a given newspaper is to conduct one-way analyses of variance on the items in which editors were asked about their perceptions of

their newspaper's environment. For all these items, the between-groups (between newspapers) variance was significantly greater than the within-groups (within newspapers) variance. From this, it could be concluded that at a given newspaper, editors' responses tended to be more alike than different.

²⁷ Aggregation of data is a common — though not uncontroversial — practice in organizational research. See Alan Bryman, *Research Methods and Organizational Studies* (London: Unwin Hyman, 1989) 230-233. Before proceeding with the aggregation of data, one-way analyses of variance were performed on each individual-level measure used in analyses for this paper. For all these measures, the between-groups (between newspapers) variance was significantly greater than the within-groups (within newspapers) variance. From this, it was concluded that it was appropriate to aggregate responses of editors at a given newspaper to construct organizational-level indicators for that newspaper.

²⁸ Mark Fitzgerald, "All Things to All People," *Editor & Publisher*, Jan. 7, 1995, 11-14; Howard Kurtz, "For Nation's Newspapers, the News Isn't Good," *The Washington Post*, Dec. 1, 1991, H1,H6; Jim Batten, "A Message From Jim Batten," *Knight-Ridder News*, Winter 1990, 2A.

²⁹ Readership research is defined as *any formal, systematic techniques for gathering information from a newspaper's audience members or potential audience members about those members' informational wants or needs, or about characteristics believed to be associated with the audience members' informational wants or needs*. Common kinds of readership research include focus groups, experiments or probability and non-probability surveys. Readership research is among a variety of techniques that a newspaper might use to attempt to assess the informational wants and needs of its audience. Other techniques include informal or chance discussions with audience members; letters to the editor; unsolicited complaints or compliments directed to the newspaper; and information from industry-wide efforts to identify audience informational wants and needs. But readership research constitutes the most pro-active and expensive effort to identify the informational wants and needs of readers.

³⁰ Jean Gaddy Wilson and Iris Igawa, "Strategy No. 11: 'Expand News Coverage,'" *presstime*, November 1991, 45; David Noack, "Getting Readers Involved," *Editor & Publisher*, April 23, 1994, 22,26,30.

³¹ In creating these indices, responses of editors at a given newspaper were averaged for each content category. That produced an organizational-level estimate of the degree to which readership research had influenced major changes for that content category at the newspaper. For a short discussion of aggregation, see Footnote 27.

³² This relatively crude indicator of competition was used because it was easily computed and interpreted. Despite its drawbacks, it has been used successfully in previous research. See Stephen Lacy and Jan P. Vermeer, "Theoretical and Practical Considerations in Operationalizing Newspaper and Television News Competition," *The Journal of Media Economics* 8, No. 1 (1995), 53.

³³ Debra Gersh, "Percentage of Minorities in Newsrooms Up," *Editor & Publisher*, April 17, 1993, 42.

³⁴ The sample of newspapers was drawn by taking a list of the 1,529 U.S. daily newspaper companies in business in 1990, which was ordered by total daily circulation from largest to smallest. That list was divided into three groups (large, medium and small), each accounting for about 21 million of the total U.S. daily circulation of about 62 million. The 40 largest U.S. daily newspaper companies comprised the large-paper group, the next 188 companies the medium-paper group and the remaining 1,301 companies the small-paper group. Thirty newspaper companies were selected from both the large- and medium-paper groups using an interval sampling technique with a random starting point. Forty companies were selected in a similar way from the small-paper group. This sampling strategy assured representation of large- and medium-sized newspapers, which are less numerous than small dailies. In cases in which one company published two papers with separate or largely separate editorial staffs, one of the two papers was randomly selected for the sample.

³⁵ Responses were received from 28 of the large-circulation newspaper companies (274,000 daily circulation and up), from 27 of the medium-circulation companies (59,700 to 273,999 circulation) and from 23 of the small-circulation companies (58,699 circulation and below).

³⁶ *Editor & Publisher, Market Guide 1990* (New York: Editor & Publisher, 1990).

³⁷ This significance level was chosen because of the relatively small sample size. The intent in selecting a significance level that is more generous than is customary was to avoid a Type II error.

³⁸ For an explanation of how W was computed, see Elazar J. Pedhazur, *Multiple Regression in Behavioral Research: Explanation and Prediction*, 2nd (New York: Holt, Rinehart and Winston, 1982)616-623.

³⁹ Keith R. Stamm, *Newspaper Use and Community Ties: Toward a Dynamic Theory* (Norwood, NJ: Ablex Publishing, 1985).

⁴⁰ Child, "Organizational Structure, Environment and Performance," 1972; Daft and Weick, "Toward a Model of Organizations," 1984; Dess and Origer, "Environment, Structure and Consensus in Strategy Formulation," 1987; Downey, Hellriegel and Slocum, "Environmental Uncertainty," 1975; Milliken, "Three Types of Perceived Uncertainty," 1987.

⁴¹ Downey and Slocum, "Uncertainty: Measures, Research and Sources of Variation," 1975.

⁴² Milliken, "Three Types of Perceived Uncertainty about the Environment," 1987; Milliken, "Perceiving and Interpreting Environmental Change," 1990.

⁴³ Underwood, *When MBA's Rule the Newsroom*, 1993.

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

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Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets
ABSTRACT

This paper uses evidence from case studies of Montgomery, Alabama and Paragould, Arkansas to examine the strategic behavior of firms in these markets. It is found that incumbents use a variety of tactics including price cutting and litigation to deter entry by a rival. These tactics and their effects impact the ability of entrants to come into a market and compete. These findings have implications for policy makers as they explore whether to deregulate telecommunications.

INTRODUCTION

In February 1995 Sen. Larry Pressler introduced legislation that would deregulate telecommunications and allow cable and telephone companies into each others businesses. The objective of this legislation as well as that of the Cable Television Consumer Protection and Competition Act of 1992 (the '92 Cable Act) is to open these markets to competition. Cable television in local markets like local telephone service has historically been considered a natural monopoly with competition infeasible in the long run. However, cable's natural monopoly status was successfully challenged in the courts in cases such as *Preferred Communications, Inc. v. City of Los Angeles, Cal.* Additionally, some scholars have argued that the lack of competition in local markets has been due more to artificial constraints placed on would-be entrants than on any "natural" characteristics of cable television delivery.

While competition in cable television delivery is certainly desirable, it may only be feasible under certain conditions. Economist Albert K. Smiley (1986) modeled the competitive interaction of two cable operators with overlapping franchises and found that both the degree of overbuilding and the resulting welfare effects are highly sensitive to market conditions. Among the market conditions cited by Smiley as impacting competition in cable television delivery are intensity of demand, the cost of cabling the community and the strategic interaction between firms. Because the first two factors are exogenous and therefore outside cable operators' control, it is on the latter that would-be competitors should focus. The entrant should anticipate that the incumbent firm will not sit idly by but, will use a variety of tactics to prevent or forestall entry by a rival.

At the time of the passage of the Cable Act of 1992, direct head-to-head competition could be found in about forty communities in the United States. This type of competition is commonly referred to as an "overbuild" and is defined as a situation in which "cable television service is offered by two or more cable systems in direct competition within the same service area." Two of these communities are Montgomery, Alabama and Paragould, Arkansas. In Montgomery, Montgomery CableVision, Inc., an independent operator is overbuilding Storer (now TCI), an established multiple system operator.

Paragould, Arkansas is one of the few examples of a municipal overbuild of a private operator. The City of Paragould through its Commission of Light and Water (CLW) has been competing with Cablevision Systems, Inc. (the nation's sixth largest mso) since March, 1991.

This paper uses evidence from case studies of Montgomery and Paragould to examine the strategies and tactics employed by both incumbent and entrant cable operators in competitive situations. The primary objective of the paper is to provide insight into the likely behavior of firms in these situations and the impact of that behavior on the feasibility of competition. This can then be used to inform the public policy debate on telecommunications deregulation.

RATIONALE FOR THE STUDY

The case study was chosen as the method of inquiry because it enables the researcher to take an in-depth approach to complex issues. Competition in cable television is particularly well-suited to this method. In an article on franchise bidding in cable television, economist Oliver E. Williamson (1976) quoted from Bauer and Walters:

the complexity, instability and local variation of many economic phenomena imply that the establishment or understanding of relationships requires that analysis be supplemented by extensive observation and also that the inquiry must often extend beyond statistical information to direct observation and use of primary sources.

Thomas W. Hazlett, arguably the most widely published researcher on competition in cable, followed Williamson's advice and examined two duopolistic markets using the case study approach. Williamson's own case study of the franchising process in Oakland, California in the late 1960s and early 1970s, G. Kent Webb's 1983 study of the franchise bidding process in Philadelphia, and Hazlett's 1987-1988 study of the Sacramento, California and Orange/Dade County, Florida overbuilds are the only academic studies that have used this method to examine cable television. To date, only Hazlett's study has looked at overbuilds. While much of the case law and other research concerning cable overbuilds focuses on first amendment issues, this paper begins with Smiley's findings and concentrates on the strategic interaction between incumbent and entrant cable operators in two competitive situations.

STRATEGIC BEHAVIOR

In cases where two cable operators compete with one another, the market can be described as a duopoly, a special case of oligopoly. Robert S. Pindyck and Daniel L. Rubinfeld (1989) have stated, "in oligopolies, each firm must carefully consider how its actions will affect its rivals and how its rivals are likely to react." In oligopolistic situations, that strategic interaction involves competition through price setting and/or product differentiation.

Price Setting

The Bertrand model describes the type of competition that occurs in cable television. This model assumes that firms produce a homogenous good but compete by setting prices, with each firm taking the prices of its competitors as fixed and the firm with the lowest price capturing all the sales. In this case, each firm has an incentive to undercut the price of its competitor until price is driven down to marginal cost.

Smiley noted that when considering entry into a cable television market, a potential entrant should anticipate that the incumbent's price will be reduced in the post-entry equilibrium to meet the competitive challenge. Sharkey (1982) defined this type of strategy as one which "explicitly uses price as a threat against potential rivals." With this type of strategy, the incumbent firm "clearly indicates that it is willing to lower its price temporarily if entry should occur and thereby inflict short-run losses on both itself and on the entrant. After the rival has left, the incumbent can then raise its price to the monopoly level and therefore recover its short-run losses."

The key purpose of this strategy is to deter entry. For it to be successful, the incumbent firm must convince any potential competitor that entry will be unprofitable. Pindyck and Rubinfeld state that there are a number of ways that an incumbent can do this. For instance, it can threaten to expand output and fight a price war to keep the entrant out. To make the threat credible, the incumbent can make an irrevocable commitment that would alter its incentives once entry has occurred. Investing now rather than later in the extra capacity needed to increase output is an example of this type of commitment. The incumbent can also make its threat credible if it has a reputation for irrationality. If through vicious price-cutting, the firm has driven out every competitor in the past, even though it incurred losses to do so, its threat of a price war would be believable. In fact, if this were repeated in several markets, then that irrationality would become rational. The reason is that short-term losses from the price warfare might be outweighed by longer-term gains from preventing entry.

Hazlett (1990) found evidence of price cutting in his case studies of direct competition in cable in several Florida markets and in Sacramento, California. "In Florida, the response of the overbuilt incumbent to entry by Telesat was to reduce

the prices of both pay and basic services although only in overbuilt areas." He continues,

In Sacramento, the entrant, Cable America hoped to gain market penetration by offering 36 to 42 channels of basic service for a \$10 installation fee and \$10 per month. This significantly undercut the incumbent, Scripps-Howard's 40 channel basic service which was offered for \$14.50 per month. In response, Scripps-Howard sought to establish a general policy: it would lower its price for basic service while offering free installation and three months of basic service at no charge in every area where it faced direct competition. Moreover, it pledged never to be undersold by the entrant. After a rugged six months of competition, Scripps-Howard bought out Cable America for a price several times the incumbent's capital costs. A third firm entered the market and was immediately confronted by Scripps-Howard's selective price-cutting strategy. The new entrant, Pacific West decided to make an issue of the discriminatory strategy through newspaper and radio advertisements suggesting that customers in sole-supplier areas demand the same low prices offered by Scripps-Howard in overbuilt areas.

Merline, Davidson and Pierre (1990) also found evidence of selective price-cutting. In a study of competitive versus noncompetitive markets, they found that while the price of cable was lower to subscribers in areas with competition, it was higher in directly adjacent areas without competition.

FINDINGS

In Montgomery, it appears that the principals William B. Blount, an investment banker, prominent in Alabama politics, and Rush Rice anticipated that the incumbent cable firm would engage in some form of selective price cutting and as a result, drafted a uniform pricing ordinance to circumvent the incumbent's ability to employ this type of strategic behavior. The ordinance (16-90) subsequently passed by Montgomery City Council prohibits a cable franchisee from establishing "rates so low for any class of subscriber or for any geographic location as to prevent, discourage, restrict or diminish competition in the furnishing of cable services." Although there was not an all-out price war waged in Montgomery when Montgomery CableVision entered the market, Storer lowered the price of its basic service of 29 channels from \$18.25 per month to

\$16.95 per month and added 25 channels. Storer's price and number of channels was then comparable to what was being offered by CableVision. Subsequently both companies engaged in aggressive marketing campaigns which included offering a few months of free service as an incentive to consumers to subscribe.

In Paragould, the city decided to enter the cable television business as a result of its troubled relationship with its incumbent operator, Paragould Cablevision, Inc., a system owned by Cablevision Systems. Much of the conflict between the city and PCI centered on price. In December 1990, the Paragould City Council adopted an ordinance (90-38) establishing a rate of \$12.50 for a basic cable service of 40 channels to be provided by City Cable. At the time, PCI was charging \$14.50 for 38 channels of programming. In addition to plans to offer programming at lower rates than PCI, the city also intended to offer complimentary services such as free remote controls and two free extra outlets. At the time, PCI was charging \$3.00 a month for a remote control and \$3.00 for each additional outlet. In full page ads titled "Cablevision Loves Paragould," PCI announced that beginning January 1, 1991, subscribers who had been with the company for at least two years would be charged only \$9.50 a month for basic service. The company also planned to include American Movie Classics, then a premium service, as part of the basic package and to provide free remote controls, free installation, and to eliminate charges for additional outlets.

Since City Cable went on line in March 1991, the established price for basic and pay cable services in Paragould has remained unchanged. However, as is the case in Montgomery, both sides engaged in aggressive marketing campaigns to attract and keep subscribers.

Product Differentiation

A second type of competitive strategy in oligopolistic markets is product differentiation. In a discussion of competition in electric utilities, Primeaux (1979) stated that the notion that a small price difference between competitors would lead buyers to purchase from the producer charging the lower price assumes that the product is homogeneous. However, this assumption "ignores entirely the possibility that product differentiation is possible and that other reasons such as good service and company reputation may also exist which discourage an individual from switching to a lower priced producer." F. M. Scherer (1970) stated that product differentiation includes service, physical differences in the products supplied and the subjective images they impress on the consumer's mind. Pindyck and Rubinfeld have noted that "product differentiation can exist even for a seemingly homogeneous product." In this case, "differentiation will be on the basis of such things as location and services."

With respect to cable television delivery, product differentiation is likely to be done on the basis of service. This includes attitudes of customer service representatives both on the telephone and in person, response to customer complaints, and the convenience of installation. In both Montgomery and Paragould, cable operators use customer service as a way to differentiate their products. In Montgomery although the city's cable ordinance contains a section which outlines customer service standards, prior to CableVision's entry, Storer's record was less than exemplary. Over a period of time, several subscribers wrote to City Council to complain about Storer. Lack of good program selection, trouble getting complaints answered and difficulty getting through to Storer customer service representatives during periods of outage were the most common criticisms. Additionally, in the spring of 1990, after it had been granted a franchise, Montgomery CableVision commissioned a study "to assess the cable

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

television market in Montgomery, Alabama." When asked about the technical quality of Storer's service, 63.1 percent of respondents said they had experienced a problem with their reception "during the past month or so."

While one could argue that because the study was commissioned by Montgomery CableVision, its results may not be completely objective, there is other evidence to support the perception that Storer's service was substandard. For example, in October 1990, Jack Gilbert, Storer's General Manager, conceded that there were service outages and that these outages would continue through the end of 1991. He noted that the outages were a result of Storer's efforts to rebuild the system. He also conceded that "customers are often unable to get through when they call to complain about the outages."

Although there may not have been a public outcry, there was enough dissatisfaction with Storer's service to suggest that this was a dimension on which Montgomery CableVision could compete. Recognizing this, from the outset the company strove to provide superior service. According to Rice, Montgomery CableVision Vice President, our employees "are grilled on the service aspect of our business. The customer is obviously worth a lot more to us than he is to them. We offer convenient installation. We're there when you need and want us."

Nick Neely, Direct Sales Manager for the company reiterated Rice's position on the importance of customer service. "The attitude of the customer service representative is key. We try to catch the phone at the second ring. We don't leave a person holding if a question needs to be referred. . . . If (the) price is competitive, the bottom line is service. Service makes the difference."

In Paragould, PCI and City Cable differentiate themselves with respect to customer service in terms of response to complaints, convenience of installation and general system reliability. When asked whether PCI's customer service had changed with the presence of competition, Richard Hale, Paragould Cablevision

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

General Manager, noted that customer service had always been a top priority for his company. In describing a program called "ServicePlus" Hale said, "What this basically says to a subscriber is, 'if we don't respond to a non-power service outage within the next 60 minutes, we'll give you a credit for your next month's bill.'" He also noted that the company had had the program in place for years but had never formally marketed it until faced with competition. Additionally he stated that while the company used to conduct subscriber surveys twice a year to gauge customer satisfaction, "we now do them once a month."

To Jack Brinkley, City Cable Manager, his company's customer service is one the key factors that distinguishes it from PCI. To be able to respond quickly to calls from customers, Brinkley stated that City Cable runs its service department 24 hours a day, seven days a week and noted, "no matter what it is, you call us, within 30 minutes we're there." He also said,

my philosophy is if you have a good product, even if it's more expensive, if you put service behind it, you'll have a good solid customer . . . and it has worked, because we are more expensive than our competition.

Because of the high level of cable penetration in Paragould, much of the customer service detailed above relates to the restoration of service outages. However, that service also relates to the ease and convenience of installation. According to Brinkley,

When I first came to town, I had to wait a week to have my cable installed. But, now if you walk in there today and say I'd like to get hooked up this afternoon at 3 o'clock, someone would be there to get you hooked up at three o'clock.

To Brinkley competition is responsible for the change.

Customer service is also differentiated in terms of general system reliability. In designing a system to compete against PCI, Brinkley said that he recognized that because of their corporate resources, anything the city could do, PCI could do. "There's no technological competitive advantage that we can gain

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

that they can't match." As a result, "what we did was put together a good solid system so if they matched it then everybody would have good quality service. And that's what's been going on."

Smiley argued that product differentiation is not likely to be done on the basis of program offerings because consumers would probably prefer to have the entire menu of programming options available on one system. That being the case, it is critical that entrants as well as incumbents have access to the programming services that consumers find attractive. Congress recognized this and adopted provisions which prohibit most exclusive programming contracts as part of the Cable Act of 1992. Prior to the passage of the Cable Act, the entrants in both Montgomery and Paragould had difficulty obtaining programming.

As it began to contract with programmers for services to offer on its system, Montgomery CableVision encountered resistance from a number of providers including HBO, CNBC, Bravo, and TNT. As a result and on the advice of legal counsel, in August, 1990 Blount persuaded Councilor Rick McBride to introduce an additional ordinance designed to clarify the types of anticompetitive behavior prohibited by the January amendment to Section 5 of Ordinance 50-76. Blount argued that the reason that those programmers refused to deal with Montgomery CableVision was a result of "their common ownership by Storer's parent or by other coercion." Among other things, the new ordinance, No. 48-90, prohibited exclusive program contracts by making it unlawful for a cable operator, distributor, or program supplier "to restrain or attempt to restrain. . . the production, control or sale of program material or program services used in the provision of cable television service within the City."

The ordinance was adopted in September 1990. Subsequent to its adoption, Storer filed suit in federal court against the city of Montgomery and its mayor. That litigation is discussed below.

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

In Paragould, initially City Cable had difficulty getting both TNN (The Nashville Network) and the Cardinals Baseball. With respect to TNN, Brinkley said, "They didn't take us seriously . . . until we reached a 1000 subscribers, then they took us seriously."

Acquiring the Cardinals Baseball was more troublesome and more costly. The availability of a station carrying the Cardinal games had been a point of contention between the city and its incumbent cable operator for a long time. People in Paragould are diehard Cardinals fans and as a result, having an exclusive contract for the games worked to the advantage of PCI. During the summer of 1991, the Cardinal Sports Network's owners wouldn't negotiate with City Cable and the system was excluded from carrying the games. Brinkley stated, "That first year, they (PCI) killed us. They gave away a busload trip to the Cardinal Games and they ran full page ads about the exclusivity (of the games) on PCI." By the second summer, 1992, City Cable had resolved its dispute with the Cardinal Sports Network and was able to carry the games.

Larry Watson, CLW Manager noted that access to programming is critical and that City Cable was fortunate that PCI didn't have an exclusive contract with Turner's networks. "I know we couldn't make it without Turner; without CNN, Headline News, TNT."

While it is critical for an operator to provide a full complement of popular channels, in both Montgomery and Paragould there is some product differentiation with respect to program offerings.

In Montgomery, this type of product differentiation takes place in terms of both the number and types of channels offered. According to Jack Gilbert, General Manager of Storer Cable, with the city's approval, the company has transformed an underutilized public access channel into a successful local origination channel. Storer produces a controversial but popular local talk show,

offers a full range of local educational programs, and provides free cable to city hall, local public schools and other public buildings.

In its franchise application, Montgomery CableVision outlined its intention to set aside four to six local origination channels to provide "live and taped coverage of local college, high school, junior high and recreational sporting events." Subsequently, the company discovered that there wasn't sufficient interest in this type of programming to justify its expense. As a result, Montgomery CableVision has chosen not to compete with Storer on local origination.

In its application, Montgomery CableVision also detailed its plan to construct a 550 megahertz fiber optic system that would give the company the capacity to expand up to 77 channels. Although the company decided not to deploy fiber, the system is capable of transmitting 77 channels. As of February 1993, approximately 70 channels were in use. The excess capacity gives Montgomery CableVision the flexibility of adding new channels as they become available, offering more Pay-Per-View choices, and multiplexing others such as Disney and Showtime.

Storer has the edge in cable radio and in being the exclusive Montgomery outlet for TNT and ESPN's Sunday Night NFL package. It offers DMX (Digital Music Express), a system which provides more than 30 channels of uninterrupted CD-quality music for \$9.95 a month. Alternatively, for a one-time charge, a subscriber may choose Superaudio, a nine-channel cable radio service.

Nick Neely, Montgomery CableVision Direct Sales Manager, believes that with DMX and TNT Storer has been able to keep many of the subscribers that would otherwise have switched to Montgomery CableVision. The latter is hoping to add DMX in the near future and TNT when the provisions of the Cable Act of 1992 pertaining to exclusive contracts go into effect. For the time being,

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

Montgomery CableVision emphasizes its ability to offer what Storer cannot because of space limitations. These offerings include additional premium channels, local weather radar and a 24-hour sports tracking service.

In Paragould, City Cable began doing local programming in the summer of 1991 in effort to attract more subscribers. That programming includes a weekly news show anchored by reporters from KAIT, the ABC affiliate in Jonesboro, cooking shows, and other community events. The system also offers live coverage of city council and quorum court meetings on a regular basis.

While offering local programming may be a way for a cable operator to differentiate its product, it can be expensive. While admitting that City Cable had gotten a bit carried away with local programming in the beginning and has since scaled back a bit, Brinkley also noted, "People watch that stuff. Maybe not a lot, maybe it's only five or ten people. But, that's five or ten customers we have because we've got something they like. That instills a good memory in those people."

Hale stated that PCI had become involved in local programming over the previous year but not to the extent that the city had.

We do local programming where subscriber interest would warrant it. City council meetings, quorum court meetings, Christmas Parades -- we do those kinds of things. We don't get into some of the other types of local programming that the city does. We feel the networks do a much better job of that.

He also noted that local programming was never an issue prior to competition. "I'm sure there is some interest out there. [But] it's usually a niche appeal."

Delay Tactics

In cable television delivery, an operator must obtain a franchise from the local government. The requirements contained in these franchises can become barriers to entry. From his Florida and Sacramento studies, Hazlett learned that in

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

addition to selective price-cutting by incumbents, entrants were also confronted with a negative political climate. In 1987

The Florida Cable Television Association won passage of a statute which requires all new entrants to gain cable franchises and establishes strict standards and extensive procedures for their issuance. Requirements include a lengthy series of mandated public hearings and studies to establish whether any public need exists for a cable entrant and to insure that, if public need does exist, the second franchisee receives permission to enter on terms no less onerous than those included in the incumbent's franchise award.

The fact that the statute was passed at the behest of the Florida Cable Television Association suggests that it was part of the strategic plan of incumbent operators to delay entry by competing firms. A similar strategy was employed in at least four other states. According to a Multichannel News report, in Minnesota a statute was passed that while permitting two or more operators to obtain franchises, would compel overbuilders to be subject to the same requirements as incumbent operators. Additionally, cities are free to require more stringent provisions in other terms of the second system's franchise. Illinois, Tennessee and Oklahoma adopted statutes similar to that enacted in Minnesota. In the latter two states, the laws also include provisions designed to thwart entry by utilities. In all four cases, the laws were drafted at least in part by state cable television associations and were supported by the cities. The incumbent operators seek this type of legislation to ensure that entrants are not given preferential treatment and because overbuilds result in lower penetration rates and higher marketing costs. It has been suggested that some cities take the positions they do because they fear that competition will result in a decrease in the franchise fees received from cable.

While some of the requirements contained in the statutes outlined above would ensure that entrants and incumbents be treated equally and fairly, others such as the series of public hearings and studies mandated by the Florida law may

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

serve no other purpose than to delay entry. Public hearings and studies are among the more commonly used tactics employed by incumbents to thwart entry by rivals. In Montgomery, although the city's cable ordinance is explicitly non-exclusive, the original ordinance(50-76) required the city council to publish "its intention to award. . .a franchise or franchises", solicit the filing of competing applications, and accept applications "from all interested parties for a period of sixty days." Blount successfully drafted and presented to council an amendment that would eliminate this requirement. In a statement before city council protesting the adoption of the amendments, Storer's attorney, Thomas Lawson, Jr., argued that determining whether a second cable operator would be beneficial to the city of Montgomery could only be made "after a thorough analysis and investigation." Lawson also noted that many cities had engaged consultants to help them determine the advisability of granting a second franchise. Additionally, he stated that "Storer would be willing to bear part of the costs of retaining a consultant of the City's selection, perhaps with similar backing from Montgomery CableVision to make an appropriate study and come up with recommendations. In a March 1990 letter sent to the mayor and city council, Michael S. Tallent, then President of Storer Cable Communications, followed up on Lawson's statement and presented seventeen questions outlining the issue⁵ which the company felt the city should consider prior to granting a second franchise. Many of the questions related to Montgomery CableVision's assurances to the city and the company's commitment to construct and operate a competing cable system in Montgomery. Tallent's letter also states that "every major study ever done on a proposed overbuild concluded that overbuilds are not economically viable in the long-run and do not result in sustained competition."

Neither Lawson's statement nor Tallent's letter were able to persuade the city council to delay awarding Montgomery CableVision a franchise.

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

Once a franchise has been awarded, a common tactic used by incumbents is to engage the entrant in various types of litigation. That litigation, regardless of the legal outcome, often has a chilling effect on would-be entrants. Such was the case in both Montgomery and Paragould.

In Montgomery, in their first days as rivals, both companies employed a variety of tactics as they attempted to attract or retain subscribers. In a letter to Lewis King, then General Manager of Montgomery CableVision, Gilbert detailed some installation complications that Storer had experienced since Montgomery CableVision had begun installation and hook-up to subscribers. "Such action is contrary to Alabama common law and statutory law and is violative of certain regulations of the Federal Communications Commission. We demand that Montgomery CableVision cease and desist its illegal activities."

The alleged illegal activities to which Gilbert referred were Montgomery CableVision's use of existing internal wiring to connect customers. Storer claimed that it had installed the wiring and as such the wiring belonged to Storer. King replied in a rather sarcastic letter to Gilbert.

You mention one instance in which you say our crews used internal wiring, possibly installed by Storer to connect a new subscriber of ours. In such an instance, if you believe that a subscriber has breached his or her agreement with you concerning ownership of internal wiring to receive cable transmissions from another source, then your recourse is against the subscriber. If upon receipt of notice of termination by a subscriber, you wish to collect the internal wiring, please notify the subscriber of this fact and make arrangements to collect the wiring promptly. We will gladly replace the subscriber's internal wiring ourselves.

Thank you for you letter, although it is unfortunate that you felt it necessary to draft this correspondence in the form of a demand letter. We appreciate your help during this transition period and you can be assured that we will do everything possible to make this process a smooth one for both companies and our subscribers.

There was no further action by either party with respect to the ownership of internal wiring.

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

A similar issue arose in Paragould. In a suit filed against the city, Paragould Cablevision alleged that City Cable's employees had been disconnecting Cablevision's wires from customers who were switching to City Cable. In response, CLW filed a motion asking the court to either dismiss the suit or compel Cablevision to add the property owners, that is, the subscribers to the suit. In April 1991, the court denied the motion to dismiss the suit but did grant the alternative motion, compelling PCI to add the property owners to its suit. In September 1991, PCI filed a motion to dismiss the suit stating that the company "does not desire to proceed with the action at this time by naming property owners as defendants as directed by the court."

While the internal wiring litigation can be viewed as being rather frivolous, other forms of litigation cannot. As discussed above, Montgomery CableVision encountered resistance from a number of providers including HBO, CNBC, Bravo, and TNT as it began to contract with programmers for services to offer on its system. In response to the adoption of the ordinance which prohibits exclusive program contracts, Storer filed suit in federal court against the city of Montgomery and its Mayor, Emory Folmar in September 1990. The lawsuit alleged that both this ordinance and the amendment to Ordinance 50-76 adopted in January 1990 requiring uniform pricing "were designed to prevent Storer from effectively and fairly competing for cable subscribers."

According to an article in *The Alabama Journal*, in November 1990 Montgomery CableVision was allowed to intervene fully on behalf of the city because, the company's "ability to compete with Storer and fulfill the terms of its own franchise agreement will be harmed if the court invalidates the two cable television ordinances."

Although a summary judgement on the suit was issued in October 1992, many questions remained unresolved. According to Storer's Gilbert, the

Strategic Behavior and Competition in Cable Television Evidence from Two Overbuilt Markets

summary judgement left the ordinance intact but removed a line which said if Storer had any exclusive contracts, the company would be in automatic violation and would risk the loss of its franchise. Blount referred to the October ruling as "very confusing". The case was tried in August 1993. Both sides conceded that the litigation was extremely costly and that many of the issues in the suit were rendered moot by the provisions of the 1992 Cable Act which require access to programming and a uniform rate structure.

The suit substantially delayed Montgomery CableVision's entry into significant portions of the city because of the costs incurred by the company in litigation and because of the chilling effect the litigation had on capital. According to Blount, "capital wouldn't come to us until they could see a resolution of the court case . . . we couldn't raise any money."

In Paragould, the city's incumbent operator, Paragould Cablevision, Inc. filed three lawsuits against the city. The first only days before the city council was to authorize the issuance and placement of bonds to finance the construction of its cable system. This suit was filed against the city and CLW by PCI in Greene County Chancery Court on January 18, 1990. In its complaint PCI stated that it was seeking to have the defendants, CLW "preliminarily and permanently enjoined from constructing and operating a cable television system in Paragould, Arkansas." PCI alleged that the construction and operation of a cable television system by CLW would constitute "an unlawful *ultra vires* act beyond the powers conferred on CLW" as a municipal utility. Further, the issuance of bonds secured by a tax to finance the system "would constitute and illegal exaction" under the Arkansas constitution. PCI also argued that even if CLW had the authority to construct and operate a cable system, the franchise agreement between the city and CLW unlawfully delegated legislative powers to CLW.

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

In February 1990, Judge Howard Templeton denied plaintiff PCI's motion for a preliminary injunction and granted the defendants' motion for summary judgement. He said, under an Arkansas statute enacted in 1987, the city has "the authority to construct and operate a cable television system." Additionally, under a 1988 amendment to the Local Government Bond Act, "the city has the authority to issue capital improvements bonds to finance the construction and installation of a cable television system". Finally, Templeton stated, the city can legally and properly delegate to CLW the authority to construct and operate a cable system. "The franchise agreement entered into between the City of Paragould and Paragould Light and Water Commission, as amended [in January, 1990] reflects the delegation of administrative and ministerial functions and is not . . . an unlawful delegation of the city's legislative authority."

The second suit was filed in federal court less than two weeks later. In this action PCI once again sought to enjoin the city and CLW from entering the cable business. The complaint contained three counts. Count I, attempt to monopolize, charged the city and CLW with anti-trust violations under Section 2 of the Sherman Act. The anti-trust charges were based in part on CLW's status as a government-created electric utility monopoly and its ownership and control of utility poles that are "necessary for the operation of PCI's cable system." Count I also alleged that CLW would use its "leveraging power" to force PCI to pay for the relocation of cable lines that would be necessary to make room on the poles for a second cable system. PCI argued that

CLW's power to control the use of the poles, its monopoly power held in the provision of electric service, its new status as a direct competitor with PCI and its announced intent to proceed with the construction and operation of a cable television system results in a dangerous probability of success in excluding competition from and monopolizing the relevant market.

With respect to the city, PCI asserted that its dual role as a competitor to and regulator of PCI's operations suggested that the city, like CLW, would "enjoy

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

a dangerous probability of success in excluding competition from the relevant market."

Count II of the complaint stated that parts of the 1983 franchise agreement between the city and PCI violated PCI's First and Fourteenth Amendment rights. Specifically, Paragraph 2.4 of the franchise agreement stipulated that PCI must notify the city if the company were going to engage in any activity, including the sale of local advertising, that would generate additional revenues for the company. The franchise agreement also required PCI to negotiate with the city before undertaking this type of activity. Implied in this stipulation was the likelihood that the city would allow PCI to engage in additional income-generating activities but would require any revenue from those activities to be included in the calculation of the franchise fee.

From PCI's point of view, the fact that its franchise agreement with the city required the notification and negotiation outlined above while CLW's did not constitute a "discriminatory media tax in violation of the First and Fourteenth Amendments."

Count III of the complaint stated that when the city granted to CLW a franchise that contained no prohibition against local advertising, the city breached its contract with PCI.

In response, the city and CLW filed motions to dismiss. With respect to the charges of anti-trust violations, the defendants' motions were based primarily on the belief that both were protected under the state action immunity doctrine. The defendants stated that their construction and operation of a cable television system in competition with a private operator was an action contemplated and permitted by the State of Arkansas.

By enacting the 1987 statute specifically authorizing cities to own and operate cable systems at a time when "virtually every city and town was already

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

receiving cable service through a private operator," the Arkansas legislature recognized that a municipal system would probably compete with a privately-owned system. The defendants also noted that because so many Arkansas cities and towns operate their own utilities, "it is logical to assume that the legislature recognized that municipal cable systems would likely be operated through such entities" and that the cities would be both regulators and competitors.

Continuing to respond to Count I of PCI's complaint, the city and CLW argued that even if the court found that the state action immunity was not applicable, to find in favor of the plaintiffs would

stand anti-trust law on its head. . . By plaintiff's own admission, it, not Defendants is currently a monopolist in the very market that it alleges Defendants are attempting to monopolize, in which market Defendants currently have zero market share. And as a relief, Plaintiff seeks to have Defendants excluded from the "relevant market." Thus, . . . Plaintiff is asking the court, under the guise of an attempt to monopolize claim, to preserve Plaintiff's current monopoly.

The city and CLW argued that Count II should be dismissed because the issue of local advertising "does not state a claim under the first amendment" and PCI's franchise agreement with the city was a voluntary contract, not subject to equal protection under the Fourteenth Amendment.

The defendants also stated that Count III should be dismissed as a pendent claim because it involves claims based on state rather than federal law.

In May 1990, the court ruled in favor of the city and CLW and granted the motions to dismiss. In dismissing the plaintiff's claims that the defendants violated federal anti-trust laws, the court stated that the passage of two statutes relating to cable television by the General Assembly of Arkansas authorized the City of Paragould to enter into the cable television market. The statutes also "reflected the state's policy to permit the city to 'displace competition' since the 'challenged restraint is a necessary and reasonable consequence of engaging in the authorized activity.'" As a result, "the clear delegation of control to cities over

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

their television systems expressed in the cited statutes makes the court's finding of immunity for the city and its Light and Water Commission relatively straightforward."

The court next considered the charges made by PCI against the city and CLW in Count II of the complaint. The court noted that PCI's claim that the franchise agreement provision in question effectively placed a restriction on all advertising by the company was "a considerable leap." The court found that the relevant sections of the franchise agreement were contractual in nature and did not have the effect of "regulating speech of any kind." Because of the contractual nature of the franchise agreement between the city and PCI, the court also found that the absence of a similar provision in the city's agreement with CLW was not a violation of the equal protection clause of the Fourteenth Amendment. The court also noted that the absence of the provision in CLW's franchise agreement was not a discriminatory media tax. "Contract modifications do not automatically become tax questions merely because one party is a political subdivision with taxing authority." The ruling of the District Court was subsequently upheld.

There is some evidence that the suits filed by PCI against the city and CLW had a chilling effect on the city's ability to get financing. In a report to Mayor Charles Partlow and the Paragould City Council, regarding the bonds that the city planned to issue to finance its cable system, Mark McBryde, of Stephens, Inc. an investment firm selected to administer the bond issuance wrote,

In making contact with the original investors, we found a significant number that would pass as a result of the continuing litigation. We believe the city will ultimately prevail and has the authority to levy up to 6.5 mills as security for this bond issue. Stephens is willing to purchase this financing at the interest shown within this report. Our intention is to hold the bonds until litigation has been resolved. We believe this period could be between six months and two years.

In discussing the litigation, Donis Hamilton and Robert Thompson, attorneys for CLW and the City of Paragould respectively, maintain that the suits filed by PCI

Strategic Behavior and Competition in Cable Television
Evidence from Two Overbuilt Markets

against CLW and the city were part of Cablevision's competitive strategy. In a videotaped statement, Thompson said,

I think you will find there was never much merit in these suits. They were preemptive strikes. They were meant to frustrate the building of the system and create as much expense and trouble and to put the process off for as long as possible.

In correspondence to the author Hamilton noted,

it is my general observation that these challenges to competition are mounted by private cable companies in the same identical way. For example, we compared the lawsuits against us with those (filed against the city in its attempt to build a competing cable system) in Glasgow, Kentucky and found that they were virtually identical and filed in virtually the same order. I am told that similar challenges have been mounted in the same way to cities in Florida attempting to establish cable systems.

CONCLUSIONS

Smiley has said that when examining the feasibility of competition in cable television delivery, it is critical to consider the strategic interaction between firms. In particular, the entrant should anticipate that the incumbent will act to thwart competition. The Montgomery and Paragould cases provide us with evidence on the type of tactics that incumbents employ from price cutting to litigation. These tactics and their effects impact the ability of entrants to come into the market and compete. In the cases examined here competition has not come easily. At a time when there is a movement towards deregulation of telecommunication industries such as cable television, these strategic interactions and their effect on the viability of competition must be taken into consideration. It is critical that policy makers take note that incumbent firms in historically closed markets do not let rivals enter without a fight.

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Vertical Integration and Consumer Welfare
in the Cable Industry

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Abstract

Two economic theories compete with respect to the effects of vertical integration in the cable industry. The efficiency theory suggests that vertical integration has resulted in a better performance or economic value in terms of the cable subscription fee and the accompanying diversity. Contrarily, the theory of market power through entry barrier and resulting foreclosure suggests that the vertical integration has led to diseconomies and inefficiencies for the cable firms and reduced content diversity for the consumer.

To test the direct consequences of vertical integration, this study compared the consumer welfare of the integrated multiple system operators (MSOs) with that of the nonintegrated MSOs in the two dimensions indicated—subscription fees and content diversity. It was discovered that in general, the consumer enjoys greater diversity and the lower prices from the integrated MSOs but this effect was confounded by the differences in the system size between the two groups. Interestingly, there appears to be a threshold that the consumer benefits from vertical integration. Nonintegrated MSOs provide less channel diversity and charge the highest prices per channel as do highly integrated MSOs. The greatest consumer welfare arises from moderately integrated MSOs.

I. INTRODUCTION	1
II. PROCOMPETITIVE CONSEQUENCES OF VERTICAL INTEGRATION.....	3
1. EFFICIENCY-ENHANCING EFFECT	3
2. THE SOURCE OF PROGRAM DIVERSITY.....	5
III. ANTICOMPETITIVE CONSEQUENCES OF VERTICAL INTEGRATION.....	7
1. ENTRY BARRIER AND FORECLOSURE EFFECT	7
2. THE SOURCE OF DISCRIMINATORY CONDUCT	10
IV. RESEARCH PROBLEMS, HYPOTHESES, AND METHODS.....	12
1. RESEARCH PROBLEMS AND HYPOTHESES	12
2. METHODS	16
V. RESULTS	18
1. GENERAL CHARACTERISTICS	18
2. SERVICE PRICE.....	22
3. DIVERSITY	27
VI. DISCUSSIONS.....	29
REFERENCES.....	32
APPENDIX.....	35

I. Introduction

The increase in concentration within the cable industry has been paralleled by a growth in vertical integration. A recent study reports that vertical integration between MSOs and cable program suppliers is extensive and the extent has markedly increased since the mid-1980s (Waterman and Weiss, 1993b). In fact, vertical integration has long been one of the major concerns in the realm of mass media, tracing back to the historic *Paramount* case (*U.S. v. Paramount Pictures*, 1948) in the motion picture industry. Hence neither the phenomenon nor the controversies of vertical integration are unique to the cable industry. But, partly because of the growing importance of its product, partly

because of the very numerous nonintegrated competitors, suppliers, and customers interspersed throughout it, the cable industry provides the most controversial, if not the purest, example of the problems that arise when size and market dominance are associated with vertical integration.

For the policy maker, vertical integration raises issues of preserving freedom of access by information providers to the public and of achieving maximum diversity of information products (Brennan, 1990). For the economist, on the other hand, vertical integration raises issues of economic efficiency (Waterman and Weiss 1993a). Virtually all discussion regarding vertical integration issues, thus far, seems to focus primarily on the former area—access of program suppliers to the public (Klein, 1988; NTIA, 1988; FCC, 1990; Waterman and Weiss, 1993b). As local monopolists, however, integrated MSOs have a variety of other opportunities to behave differently towards affiliated and non-affiliated networks when both are offered on its menu (Waterman and Weiss, 1993a). For example, since the Cable Consumer Protection and Competition Act of 1992 and underlying antitrust acts allow cable programming networks to charge cable operators differential rates for their programming services for “legitimate business reasons,” large integrated MSOs can get volume discounts from their network affiliates. In reciprocity, the network affiliates can be placed on better channel positions on the local systems.

To date, these issues have been treated from the point of the bilateral bargaining relationship between the networks and the operators. In other words, the consequences of vertical integration from the consumer’s standpoint have been largely ignored or untested. Thus, the present study seeks to be more inclusive by exploring the direct effect of vertical

integration on consumer welfare in the price and content diversity. How do consumers benefit from this kind of vertical integration? Is massive vertical integration in any sense a necessary or socially desirable consequence of the economic and physical characteristics of cable television production and distribution? The answers to these questions are sharply divided into two different theories.

II. Procompetitive Consequences of Vertical Integration

1. Efficiency-enhancing Effect

At least since Ronald H. Coase (1937), many economists have viewed the abandonment of the market implied by vertical integration as a socially desirable adaptation because vertical integration tends to reduce the misallocation of resources (Spengler, 1950; Bork, 1954; Comanor, 1967; McGee and Bassett, 1976; Perry, 1978; Williamson, 1971, 1974, 1979, 1985). For example, in current antitrust enforcement, there is a general presumption that vertical mergers are not anticompetitive. The successive monopoly model, frequently accredited to Spengler (1950) and Machlup and Taber (1960), is a major intellectual impetus for that policy. It says that vertical integration results in a reduction of the final good price by eliminating the double marginalization (Salinger, 1991). In this view, therefore, integration eliminates a dead weight loss resulted from double monopoly markups on product price and increases consumer welfare because price of the final product is reduced in the direction of its marginal cost (Waterman, 1993).

Reinforcing this efficiency rationale is a more efficient contracting between buyer and seller. In his well-known article, Coase (1937) suggested that there were a number of

costs of using the price mechanism, among which were the cost of finding out what the relevant prices are and the cost of negotiating and concluding a contract. In cases where the cost reduction is not obvious, Williamson (1971, 1974, 1979, 1985) uses "transactions costs" theories to explain the vertical extent of a firm. According to Williamson (1985), the economic institutions of capitalism have the main purpose of economizing on transactions costs. In this view, the routing of transactions inside firms raises profits *together with* social welfare. Williamson therefore argues that integration serves to reduce contracting costs or to avoid the risk of opportunistic behavior. By providing a setting for joint profit maximization, vertical integration may eliminate or mitigate the exercise of market power and lead to efficient input use. Long-term contracts may produce a similar effect in eliminating the exercise of market power. However, in the presence of uncertainty, it is difficult or impossible to write complete contracts that adequately cover future contingencies and ex post adaptation to realized events may result in inefficient, opportunistic behavior (Lieberman, 1991; Kerkvliet, 1991). Hence, vertical integration through ownership is more assured than through contract. On the basis of these theories, in fact, National Telecommunications and Information Administration (1988) asserts that "vertical integration allows the cable firm to avoid the transaction costs of obtaining programming" (NTIA, 1988, p. 90).

If there are transactions costs, particularly in a free market where transactions are heterogeneous and the search for a buyer or seller may be lengthy, there may be an incentive to combine a number of events or activities into one bundle by arranging long-term contracts. A number of sellers and buyers become one market unit by integration,

and the firm which arises does not have to hunt for buyers and sellers in its internal transactions as a result (Malmgren, 1961).

The main deficiency of these explanations, however, is that transactions costs are not well enough defined so as to be measured, so the theory has not been successfully tested quantitatively (Flaherty, 1981). In addition, even if firms are integrated to internalize both technological and transactional economies, market imperfections caused by externalities, imperfect competition, or imperfect information remain an important determinant of vertical integration. Vertical integration in response to such technological or transactional economies generally increases welfare. On the other hand, vertical integration in response to market imperfections may increase or decrease welfare. Thus, public policy questions become the primary interest (Perry, 1989).

2. The Source of Program Diversity

These efficiency theories provided by NTIA (1988) and the FCC (1990) correspond to the contention that vertical integration has expanded the supply of cable programming in an elastic fashion and thus significantly improved diversity of viewing choices for cable subscribers. The FCC also states that vertical integration has increased not only the quantity but also the "quality" of program services available to the viewing public. In the views of NTIA and the FCC, horizontal concentration and vertical integration produces significant benefits and good economic purchasing value for cable subscribers. The correspondingly higher concentration levels in the cable industry have enabled cable companies to take advantage of valuable economies of scale and foster investment in more and better program sources, which in turn lead to more investment in programming, more

original programming and a wealth of new viewing options for cable subscribers (FCC, 1990). Cable ownership concentration thus is considered an economic "good" rather than a "bad," yielding superior performance for the industry. In more specific terms, MSOs are said to provide critical financial support to sustain such companies as Turner Broadcasting, The Discovery Channel, BET, and C-SPAN in their expanded programming efforts. Thus, in their view, vertical integration by MSOs with significant subscribership has contributed to program diversity by providing financial support for faltering services.

The proponents of vertical integration also note the so-called "synergies." In addition to providing needed capital and a ready subscriber base for new programming services, cable operators can more easily share information with producers about viewer taste, reaction to programs and desire for new programs (Klein, 1989). More generally, executives and managers who are skilled at cable system operation may also be skilled at cable network operation (Waterman and Weiss, 1993b).

In sum, on the issue of service prices, it is argued that vertical integration is likely to result in lower consumer prices. On the issue of the diversity, it is suggested that all of these advantages of vertical integration ultimately benefit the viewing public because they are likely to result in an expansion of the programming that is available to the public and to increased consumer satisfaction (Klein, 1989). As Brennan (1990) points out, media monopoly may not lead to reduced diversity in program. In some situations, a monopolist might find it profitable to provide more diverse programs at a faster rate than would its competitors, to deter entry and protect its monopoly profit. For whatever reason, the outcome is increased diversity—at least in the short run.

III. Anticompetitive Consequences of Vertical Integration

1. Entry Barrier and Foreclosure Effect

Countering those arguments that vertical integration increases efficiency and welfare, a number of economists (Stigler, 1951; Edwards, 1953; Adams and Dirlam, 1964; De Chazeau and Kahn, 1959; Kahn, 1971; Litman, 1979, 1992; Eccles and White, 1988; Rotemberg, 1991) pay more attention on inefficiencies and possible anticompetitive consequences associated with vertical integration. It is argued, first of all, that not only are internal transactions not free, but also integration may bring problems of coordination and other managerial diseconomies. Thus, vertical integration is much more costly and riskier than operating at a single stage; there may be considerable inefficiencies which result from trying to operate additional stages at optimal levels. Often the economies of scale do not coincide between adjacent stages (Litman, 1992). Diseconomies and inefficiencies embedded in the vertical integration can have direct implication for the cable service prices.

No doubt, integration and the concomitant abandonment of market transactions occur only when this is privately profitable, either in the short run or in the long run. Firms choose to integrate if the expected profit from doing so exceeds that of the separate divisions acting independently (Green, 1986). However, there exist situations where, given market imperfections, the firm's private profitability creates undesirable social by-products. When the market is distorted, firms generally can earn rents. Thus, firms would willingly tolerate organizational inefficiencies if such inefficiencies help them capture these rents (Rotemberg, 1991). Thus, consumers can be made better off when there is vertical

integration in the market system, only if competition insures and compels that such cost savings are indeed passed on to consumers (Carlton, 1979). Unfortunately, however, cable lacks competition in the local exhibition stage and hence structural imperfections cannot compel good performance.

Furthermore, it is possible that vertical integration increases the difficulty of entry by new firms, by increasing the capital and knowledge necessary to conduct several types of operation rather than depend on rivals for supplies or markets (Stigler, 1951). Established firms may use vertical integration strategically to increase finance requirements and thereby to discourage entry if potential entrants feel compelled, as a condition of successful entry, to adopt the prevailing structure to enter at multiple stages—as they may if the industry is highly concentrated.

Integration confers advantages of a purely strategic character, by giving a company more certain access than nonintegrated competitors enjoy to materials and markets, and by protecting it against the squeezes on prices and margins that may afflict firms confined to one particular stage of production. Therefore, to the extent that integration narrows the alternatives intermediate markets offer to nonintegrated competitors, integration makes it necessary for them to integrate as well (De Chazeau and Kahn, 1959; Comanor, 1967). Hence vertical integration may breed vertical integration apart from any gains in efficiency (Litman, 1979). It is particularly likely to do so if it carries no offsetting disadvantages. If, for example, integrated firms are very large and at the same time operate with decentralization of management, they may enjoy the advantages of market specialization in

their own department while retaining the strategic benefits integration confers, of protection, assurance, and balance (De Chazeau and Kahn, 1959).

Recently the increasing trend in vertical integration can be explained in part by the increasing difficulty encountered by new programming networks in gaining a niche access in the steadily expanding universe of competing cable services. Even though some independent networks such as ESPN and USA are among those with the highest subscribership, all of the independent networks with the highest subscribership and ratings were established in the early years of cable before extensive vertical integration and a variety of cable niche programming have been developed in the cable industry. They thus had the built-in advantage of "being there first."

One example of integrated MSOs' abuse of power to curtail programming services competing with their network siblings involves the attempt of NBC and Cablevision to launch CNBC in 1989. In response to the new competition in news programming service, a number of large MSOs insisted as a condition of carriage that CNBC not become a general news service in direct competition with CNN, which is owned partly by TCI, Time Warner, Viacom, and other MSOs (FCC, 1990).

By contrast, CNBC's contracts did not preclude it from providing programming that might duplicate or compete with FNN, another consumer news service which were independently owned. The outright intent of the contract was to protect CNN from direct competition to its general news service and to allow CNBC to provide programming that could compete with other unaffiliated program services.

2. The Source of Discriminatory Conduct

The apparent influence of vertical integration on information product retailers is frequently observed. For example, ownership of cable programming could give a cable operator the incentive to carry affiliated services to the exclusion of unaffiliated services. Certain channels such as ESPN, USA, and HBO are, for all practical purposes, economic "must carries" for all cable systems. Other network siblings constitute strategic "must carries" for vertically integrated parent cable operations.

In the Waterman and Weiss studies (1993a; 1993b), MSOs vertically integrated with cable networks have been found to carry their affiliated networks more frequently than rival networks. More importantly, Waterman and Weiss reveal that when both affiliated and rival networks are carried on a system, subscribership is often skewed toward the former. Due partly to favored promotion and channel position, cable networks which are vertically integrated enjoy significantly higher subscribership and correspondingly higher ratings than new nonintegrated networks. Only three post-1984 Cable Act channels appear among the 15 channels with the highest subscribership and ratings; all three, i.e., TNT, The Discovery Channel, and Nickelodeon, are vertically owned (FCC, 1990). This implies that there are many subtle advantages afforded to the integrated networks.

Moreover, almost all of the contracts between unaffiliated program services and cable operators give the operators "deletion rights"—i.e., the right to discontinue carriage of a program service. Such deletion rights provisions, however, appear to be absent from affiliation agreements between integrated MSOs and their own programming services. The Nostalgia Network lost a chunk of its subscriber base because Time Warner Cable decided

to drop the network from its giant New York City operation in January, 1994. The same cable system dropped The Travel Channel a year before (Multichannel News, 1994). Needless to say, these two programming networks are not financially affiliated with Time Warner. Given the unequal distribution of power among the national MSOs, the biggest players thus have virtual veto power over access and can also utilize reciprocity where necessary to insure successful launches of new affiliated parent networks.

In sum, the network branch of the integrated firm might use its cable system ties strategically to disadvantage existing or potential network rivals. The MSO branch of the firm might use its network ties to create barriers to entry or otherwise disadvantage alternative multichannel video distributors (Waterman and Weiss, 1993b). The inevitable result is that vertical integration may reduce the supply of cable programming or limit the diversity of program services available to cable subscribers (NTIA, 1988). Thus vertical integration has implications of substantial significance for content diversity. Parent MSOs' propensity of favoring affiliated networks may lead to a distorted programming package rather than optimal mix of programming available to consumers.

However, there also are counter arguments to foreclosure effect and discriminatory conduct by integrated MSOs. The cable industry generally relies on the Klein study (1989) to rebut these types of accusations of program access abuse stemming from vertical integration. Klein argues that MSOs do not discriminate against unaffiliated programming networks. Even though Klein concedes that virtually all networks are carried more frequently on integrated MSOs than on nonintegrated MSOs, he insists that the differences are "quite small." (Klein, 1989, p.47).

A more thorough and extensive study on this subject was conducted by Waterman and Weiss (1993b). They found that integrated cable systems do tend to favor the programming with which they have ownership ties, either by more frequent carriage of those networks than would otherwise be expected, or by lowering pricing or more vigorous marketing of their affiliated programming in the case of premium networks. Nevertheless, their research findings did not support the view that vertical integration is instrumental in preventing or retarding entry of alternative multichannel video delivery systems into competition with established cable systems. Waterman and Weiss suggest that integrated systems have little incentive, procompetitive or anticompetitive, to disadvantage unaffiliated networks. They concluded that although vertical integration could play an important role in the exercise of anticompetitive behavior in the cable industry, "its role is fundamentally ancillary to that of buying, that is, monopsony, power of MSOs in the programming market" (Waterman and Weiss, 1993b, p. 2). It is this latter contention which requires empirical testing and is justification for the present study.

IV. Research Problems, Hypotheses, and Methods

1. Research Problems and Hypotheses

To provide exploratory data and hopefully to resolve the apparent disputes on the vertical integration in the cable industry, this study sought to find out the consequences of vertical integration by looking at the standpoint of the consumer, not the cable operator or the network. This can be expected to provide more fruitful results for three reasons. First, discussions can provide much richer meanings when they are directed to the consumer welfare rather than business welfare since the former should be the cornerstone for public

policy. Second, it is more productive to focus on the consumer welfare because economic efficiency can be better measured in the final stage of production by observation of the consumer rather than the business entity. In most cases, it is highly unlikely to get reliable information on economic efficiency from the business itself. Third, consumer welfare should generally be a more objective criterion for the judgment on the issues. In fact, continued disputes on the vertical integration stem from the fact that the consumer welfare has been largely ignored so that an objective measure has been missing for the judgment of competing arguments.

On the basis of aforementioned theoretical discussions, two research questions were formulated:

(1) Do cable subscribers benefit from any cost efficiencies of the integrated MSOs?

H1: Cable subscribers of integrated MSOs pay equal or higher subscription fees per channel, compared to those of nonintegrated MSOs.

In contrast to the successive monopoly model of Spengler (1950), when a multi-product monopolist vertically integrates into the upstream stage, the final price may increase or decrease. Salinger (1991) conceptualized three effects of vertical mergers in multi-product industries such as the cable television industry. In his model, the monopolist might either lower both prices of the good provided by the affiliated and the unaffiliated firms, or lower the price of the good provided by the affiliated firm and raise the price of the rival's good, or raise both prices. Since some and even all prices can increase, vertical mergers in multi-product industries do not necessarily improve welfare (Salinger, 1991, p.

545). In short, the effects of vertical integration are an empirical question (Litman, 1979; Salinger, 1991).

(2) Do cable subscribers enjoy greater diversity from the integrated MSOs?

H2: Cable subscribers of integrated MSOs enjoy a lower degree of channel diversity than those of nonintegrated MSOs. The more heavily integrated the system is, the smaller the diversity will be.

If the cable consumers did benefit from the vertical integration of the cable industry, the subscribers of integrated MSOs should have greater diversity than those of nonintegrated MSOs. It should be recalled that the proponents of vertical integration argue that MSOs' investments in the upstream distribution stage have facilitated more cable programming networks. Therefore, the subscribers of integrated MSOs deserve to enjoy greater diversity.

Unfortunately, however, the unique structure of the cable industry appears not to allow the subscribers to enjoy greater diversity. If there are transaction efficiencies from the integration, the profit-maximizing incentives would command the monopolist to carry the affiliated networks, thereby narrowing his freedom of program choice. If the cable monopolist find it more strategically profitable to "favor" the affiliated networks, or to discriminate against the unaffiliated, it also will result in restricted carriage decision. In either case, the outcome will be the same: reduced channel diversity. Considering the differences in the number of integrated networks among the MSOs, more heavily integrated MSOs should show more reduced diversity.

This pattern can be strengthened by *de facto* monopoly situation in most local cable markets. Thus the backward integration of local monopoly is likely to provide cable subscribers with some grotesque, ungrateful services for a period of time. In this sense, integration and long-term contracts are oftentimes associated with low quality (Rotemberg, 1991). Eccles and White (1988) report that low quality and internal transactions go hand in hand. They also suggest that transactions costs actually increase when firms engage in internal transactions.

Several studies have attempted to measure the effect of market structure on program diversity. As these have been extensively reviewed elsewhere (Litman, 1992) and are not germane to the issue at hand, their results are omitted here. Nonetheless, two important findings are worth mentioning. First, Owen, Beebe and Manning (1974) and Owen and Wildman (1992) demonstrated that diversity was functionally related to market structure and technological factors affecting the number of available channels, and the financing method of generating revenues. More important is Litman's (1992) insightful finding that diversity is a commodity. He aptly explicates that the abstract concept of program 'diversity' from the standpoint of assuming diversity is more like an economic product than a policy or performance goal. As an economic product, it operates in a marketplace, and like other similar products, generates positive utility to those who consume it. Most importantly, "diversity obeys the laws of supply and demand" (Litman, 1992, p. 147). Litman asserts that for the basic cable and other multichannel television industries on the horizon, "diversity is the product itself" (p. 148).

2. Methods

Vertical integration refers to the situation where various firms in an industry simultaneously operate at more than one stage of production. For this study, the term is operationalized as the cable system operator's ownership of cable programming networks. More specifically, vertical integration is defined as a cable system operator's having at least 5 percent share of the programming network's equity.

The largest 25 MSOs were divided into two groups. First, TCI, Time Warner, Comcast, Cox, Newhouse Broadcasting, and Viacom consist of the integrated MSO group. Based on the list of cable systems in Television and Cable Factbook 1993 Edition, 250 systems from these MSOs were selected based on a weighed random sampling method.

Second, nine MSOs with no financial interest in cable programming networks consist of the nonintegrated group. This group is composed of Cablevision Ind., Adelphia Communications, Falcon Cable, Sammons, and so forth. Again, 250 systems were selected. Due to incomplete or out-of-date information on systems initially selected in the sample, 59 cases were eliminated, resulting in the analysis of total 441 cases.

There still remain 10 MSOs that have ownership interests in more than one cable programming network, but less than four. For comparison reasons, these MSOs are excluded from the sample. This threshold of four networks is not arbitrary. No MSO in this group is affiliated with top 25 cable networks in terms of subscribership reach. Rather, they have ownership ties with minor networks such as Mind Extension University, Prevue Guide, or Viewer's Choice Networks. Hence excluded in the present study are Cablevision

Systems, Continental Cablevision, Jones International, Scripps Howard Cable, Telecable Corp., Times Mirror Cable, and so forth. This grouping design is summarized in Table 1.

Table 1 Sampling Data

	Frequencies	Percentages	Cum. Percentages
Integrated Group (6 MSOs)			
1. TCI	102	23.1	23.1
2. Time Warner	51	11.6	34.7
3. Newhouse Broadcasting	20	4.5	39.2
4. Comcast	18	4.1	43.3
5. Cox	22	5.0	48.3
6. Viacom	15	3.4	51.7
Subtotal	228	51.7	
Nonintegrated Group (9 MSOs)			
7. Falcon	64	14.5	66.2
8. Cablevision Ind.	31	7.0	73.2
9. Adelphia Com.	26	5.9	79.1
10. Century	21	4.8	83.9
11. Sammons	20	4.5	88.4
12. Colony	10	2.3	90.7
13. Crown Media	26	5.9	96.6
14. Intermedia	14	3.2	99.8
15. Prime Cable	1	.2	100.0
Subtotal	213	49.3	
Total	441	100.0	100.0

As far as cable services are concerned, the consumer welfare has two dimensions: the service price and the channel diversity. In other words, the dependent variables of this study are the price and the channel diversity.

The price was measured in two dimensions—the monthly subscription fee for the basic programming and the price per channel. Monthly subscription fee cannot by itself be a comparable measure for the effect of vertical integration because it is dependent on the number of channels, the number of subscribers, and other media environments. A more precise measure for the comparison should be the price per channel, which was measured with the number of “basic” subscription fee divided by the number of “basic” channels.

Here the "basic" channel includes broadcast channels and advertiser-supported cable channels but excludes the public-educational-governmental access channels.

Diversity is divided into two categories: absolute and relative. An absolute measure indicates only how many different channel types are found in a cable system. To promote comparisons, however, Levin (1971, 1980) defined absolute diversity as the number of different channel types carried by a cable system divided by the total number of channel types for the cable industry. This measure indicates how close to the total potential diversity any system gets. Following Levin (1971), "relative diversity" was defined in terms of the number of different channel types divided by the channel capacity of the system. This relative diversity indicates how many diverse programming services a system carries within its available channel capacity. For the comparison of channel diversity across systems, a single measure is more helpful. Average diversity developed by De Jong and Bates (1991), is defined as the simple average of the absolute and relative diversity measures.

V. Results

1. General Characteristics

Table 2 represents general system differences between integrated MSOs and nonintegrated MSOs. The two groups show statistically significant differences in many system characteristics. The most remarkable differences are the number of total basic subscribers and the plant size. Integrated MSO systems are serving more than two times larger areas than are the nonintegrated MSO systems, with the former having two and half

times more subscribers than the latter. The integrated systems' larger plant size and more subscriber base seem to result in 4.74 more channels than their counterparts.

The differentials in the number of channels operated come from "cable" programming channels, not from the differences in the number of "broadcast" signals. But the total system channel capacity is almost the same at 40 channels, meaning integrated systems are more likely to take full advantage of their channel capacity. There were no significant differences in the total system capacities, the number of premium channels, and maturity which was measured by the year of operation.

Density indicates the numbers of subscribers divided by local system's plant size, measuring the numbers of subscribers per mile. Integrated MSOs serve 72 subscribers per mile, whereas nonintegrated MSOs have 46 subscribers within a mile. Thus, integrated MSOs are more likely to operate in denser areas, that is, urban areas. Though the difference is relatively great, it is statistically insignificant.

Table 2 General Characteristics

Variables	Integrated MSOs	Nonintegrated MSOs	Differences
Number of Basic Subscribers	25717.7	10055.4	15662.3**
Total Channel Capacity	40.2	40.2	-
Number of Channels Operated	35.1	30.4	4.7*
Year of Operation	20.5	18.2	2.3
Miles of Plant	444.2	208.1	236.1**
Number of Broadcast Channel	8.5	7.9	.6*
Number of Basic Cable Channel	21.8	18.0	3.8*
Total Number of Basic Channel	30.3	26.0	4.3**
Number of Premium Channel	4.8	4.4	.4
Density (Subs. per Mile)	72.2	46.3	25.9
PPV Capability (%)	39.0	26.3	12.7**

* $p < .05$, ** $p < .01$

PPV capability represents the percentages of cable systems that offer the subscriber pay-per-view options. To the extent that PPV capability represents technological progressiveness, integrated MSOs are more technologically progressive (39%) than are nonintegrated MSOs (26%).

The correlation coefficients among the variables included in the analysis are shown in Table 3. As a whole, the number of subscribers is highly positively related with the plant size ($r = .8445$, $P < .001$). The number of subscribers is moderately related with number of basic channels ($r = .4253$, $P < .001$), and hence the absolute diversity ($r = .4446$, $P < .001$). The price factors, such as the average basic subscription fee and the average price per channel, showed lower relationships with the number of subscribers.

As commonly expected, channel capacity of the cable system was a major factor for the number of basic channels ($r = .5971$, $P < .001$), and hence the absolute diversity measure ($r = .5683$, $P < .001$). The number of basic channels is highly positively related with the absolute diversity ($r = .9167$, $P < .001$) and highly negatively related with the average price per channel ($r = -.7902$, $P < .001$).

Table 3 Correlation Coefficients Matrix

	Total Subs.	Channel Capacity	Density	Maturity	Miles of Plant	Penetr. Rates	Free I. Index	Number of Basic CH.	Basic Fees	Price per CH.	Absolute Diversity	Relative Diversity	Average Diversity
Channel Capacity	.2498 (439) P= .000												
Density	.1079 (430) P= .025	.0253 (428) P= .602											
Maturity	.1163 (412) P= .018	-.0259 (410) P= .601	.0305 (406) P= .540										
Miles of Plant	.8445 (430) P= .000	.2230 (428) P= .000	-.0108 (430) P= .823	.0549 (406) P= .270									
Penetr. Rates	-.0350 (399) P= .485	-.0977 (397) P= .052	-.0028 (397) P= .956	-.0111 (379) P= .810	-.0471 (397) P= .349								
Free Input Index	-.1844 (441) P= .000	-.2662 (439) P= .000	-.0415 (430) P= .390	-.0352 (412) P= .476	-.2337 (430) P= .000	.1030 (399) P= .040							
Number of Basic CH.	.4253 (441) P= .000	.5971 (439) P= .000	.0901 (430) P= .062	.1087 (412) P= .027	.4311 (430) P= .000	-.0853 (399) P= .089	-.5294 (441) P= .000						
Basic Fees	.2318 (441) P= .000	.1818 (439) P= .000	-.0274 (430) P= .570	.0150 (412) P= .762	.2172 (430) P= .000	-.0479 (399) P= .340	-.2983 (441) P= .000	.2914 (441) P= .000					
Price per CH.	-.2453 (441) P= .000	-.4000 (439) P= .000	-.0878 (430) P= .069	-.1526 (412) P= .002	-.2602 (430) P= .000	.1012 (399) P= .043	.4970 (441) P= .000	-.7902 (441) P= .000	.1855 (441) P= .000				
Absolute Diversity	.4446 (436) P= .000	.5683 (434) P= .000	.0981 (425) P= .043	.1165 (407) P= .019	.4409 (425) P= .000	-.1120 (394) P= .026	-.6638 (436) P= .000	.9167 (436) P= .000	.2931 (436) P= .000	-.7378 (436) P= .000			
Relative Diversity	-.0500 (436) P= .297	-.1574 (434) P= .001	-.0036 (425) P= .942	-.0589 (407) P= .236	-.0559 (425) P= .250	-.0630 (394) P= .212	-.3017 (436) P= .000	-.2851 (436) P= .000	-.0450 (436) P= .348	.2086 (436) P= .000	.0618 (436) P= .198		
Average Diversity	.3741 (436) P= .000	.4398 (434) P= .000	.0853 (425) P= .079	.0794 (407) P= .110	.3669 (425) P= .000	-.1238 (394) P= .014	-.7126 (436) P= .000	.6968 (436) P= .000	.2417 (436) P= .000	-.5694 (436) P= .000	.9127 (436) P= .000	.4642 (436) P= .000	
Price per Diversity	-.1945 (438) P= .000	-.3346 (436) P= .000	-.0630 (427) P= .194	-.0999 (409) P= .044	-.2081 (427) P= .000	-.0495 (396) P= .326	.6500 (438) P= .000	-.6558 (438) P= .000	.1283 (438) P= .007	.8579 (438) P= .000	-.7352 (435) P= .000	-.2184 (435) P= .000	-.7431 (435) P= .000

(Coefficient) (Cases) 2-tailed Significance

2. Service Price

Economic efficiency of cable systems can be indirectly measured by the cable subscription fee and the price per channel. By comparing the monthly retail price of integrated MSOs to that of nonintegrated MSOs, it is possible to estimate the cost efficiencies accompanying vertical integration in the cable industry and consumer benefits from the cost savings. If there were no substantial discounts in the price per channel for the subscribers of the integrated MSOs, it means either the transaction cost reduction does not exist or cost efficiencies gained from vertical integration are kept by the system operator in its revenue pocket, resulting in no consumer welfare.

As shown in Table 4, nonintegrated systems charge significantly higher price (\$0.17, $p < .05$) for their basic cable service. In addition, nonintegrated systems charge \$0.15 more per channel relative to the integrated systems. This is a natural result because nonintegrated systems provide less channels at the same price with the integrated systems. Considering the differences in system plant sizes and the number of subscribers, this result can be attributable to the economies of scale in the cable services.

Table 4 Prices

	Integrated MSOs	Non-integrated MSOs	Difference
Basic Service Fee	19.06	19.24	.17**
Average Price per Channel	.68	.83	.15**
Price per Diversity	1.14	1.44	.30**

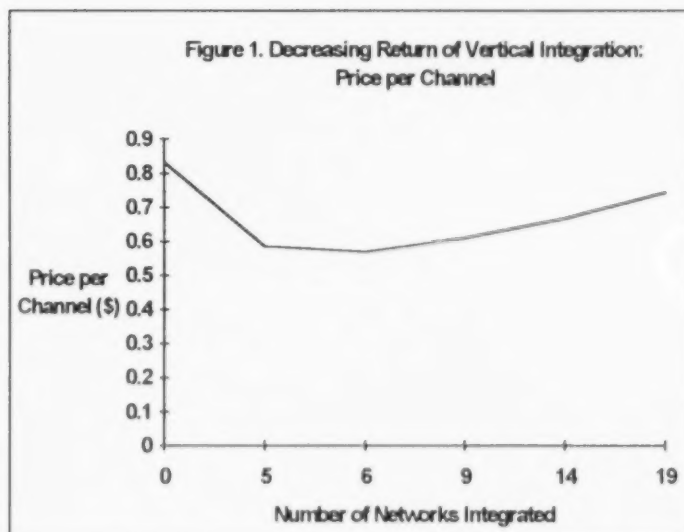
* $p < .05$, ** $p < .01$

If the differences in price per channel came from the efficiency gained from the vertical integration, it could be assumed that heavily-integrated systems charge less than lightly-integrated systems. To examine the effect of the degree of vertical integration on

the price per channel, the integrated group was separated into the individual MSO to which the systems belong. The result is interesting. As the number of affiliated programming networks is increased, the price per channel also is increased. Among the integrated MSOs, for example, the highest price per channel (\$.74) is charged by TCI systems which have ownership ties with 19 cable programming networks (Table 5). Time Warner, the second largest MSO integrated into 14 networks, charge the second highest price per channel (\$.66), Viacom the third (\$.60). There is no great difference between Newhouse Broadcasting systems which is integrated into 6 networks, and Comcast and Cox which have financial interests in 5 networks. This finding implies a very important fact that there might be a threshold demarcating the degree of efficient vertical integration. When nonintegrated, the price per channel is the highest (\$.83); With six integrated networks, MSO charges the lowest price (\$.57); and then the price is increased as the number of affiliated networks is increased. In other words, there is decreasing return of vertical integration (see Figure 1). But it is not clear whether the exact threshold is 6 or 7 or 8 networks since there is no data on MSOs which have financial interests in 7 or 8 networks. These results are statistically significant at the .001 level.

Table 5 Price per Basic Channel and Number of Basic Channel

MSOs	Number of Affiliates	Price/Channel*	# of Channel*	Cases
Non-integrated	0	.8335	25.9671	213
Comcast & Cox	5	.5861	32.2222	40
Newhouse	6	.5680	30.5500	20
Viacom	9	.6090	31.7333	15
Time Warner	14	.6680	30.8039	51
TCI	19	.7441	28.1569	102
Entire Population		.7516	28.1882	441
Total Cases = 441 * P < .001				



However, these effects interact with the economies of scale because the price per channel is closely related to the number of channels operated in each system and the plant size. The correlation coefficient of price per channel and the number of channels is .9167 (See Table 3).

It is shown in Table 6 that nonintegrated systems are more likely to be smaller than integrated systems. About half (50.3%) of the nonintegrated systems are serving in markets of less than 3,500 subscribers, while only one-third (34.6%) of the integrated systems are serving in the same market size. Furthermore, the number of integrated systems serving in the same market size. Furthermore, the number of integrated systems serving more than 50,000 subscribers are five times that of the nonintegrated systems. Thus, these overall differences in the number of channels provided and price per channel come from these size differences. When nonintegrated systems reach the economies of scale with more than 50,000 subscribers, however, they provide 1.5 more channels than integrated systems and charge almost the same price per channel.

Table 6 Price, Channel Number, and Number of Subscribers

	# of basic channel*	basic fee	Price/Channel*	Cases (%)
Total Systems	28.1882	19.1512	.7516	441
Integrated MSOs	30.2632	19.0665	.6750	228 (100.0)
-1000	20.5122	17.5998	.9277	41 (17.9)
3500	26.9474	19.0021	.7329	38 (16.7)
10000	31.7209	19.0453	.6229	43 (18.9)
50000	33.4225	19.0213	.5811	71 (31.1)
+50001	37.0857	20.9723	.5707	35 (15.4)
Nonintegrated MSOs	25.9671	19.2418	.8335	213 (100.1**)
-1000	18.6379	18.4981	1.1015	58 (27.3)
3500	23.4490	18.9714	.8913	49 (23.0)
10000	29.4643	19.5902	.6949	56 (26.3)
50000	31.9524	19.6362	.6304	42 (19.7)
+50001	38.6250	21.7813	.5733	8 (3.8)

Total Cases = 441 *P < .001 ** exceeds 100.0 due to rounding

An interesting result comes from the relationships among total basic subscribers, the number of channels, basic service fee, and price per channel (Table 6). Both integrated MSOs and nonintegrated MSOs charge about \$19 for their basic services regardless of the differences in the number of channels and subscribers. Though the number of channels provided is increased according to the number of subscribers, the service fees remain at approximately \$19 all across the systems. The most outright interpretation of this finding is that cable operators prefer to charge similar or fixed prices all across the systems and differentiate their product or provide value with the provision of different numbers of channels, that is, diversity.

It seems that the principle of scale economies does not hold in this pricing strategy. Rather, cable operators tend to reduce or increase the number of channels provided according to their specific market situations. For example, very large systems serving more than 50,000 subscribers charge similar prices with smaller systems, but provide more channels and greater diversity. Subscribers served by smaller systems, that is, rural areas, pay the same amount of money for significantly less channels and little diversity. Therefore, the cable operators are justifying unachieved economies of scale by reducing

their programming costs rather than by charging higher prices. This strategy clearly reflects the market power cable systems enjoy in rural areas, and the competition and greater public scrutiny cable operators face in urban areas. In short, the cable operators use the manipulation of diversity, while fixing the service fee at similar prices, in response to each market condition. Litman's (1992) contention that diversity is commodity and product itself can be better understood in this context.

Then, why do the cable operators prefer to manipulate diversity rather than price? First, it seems that differentials in prices among markets are more sensitive and easily detectable than are those in diversity. A slight difference in subscription fees for the "same basic service" in the consumers' eyes may lead to complaints from the subscribers and serious marketing problems for smaller systems. But differentials in diversity may go undetected, thereby allowing the cable operator to avoid complaints from the consumer and strict scrutiny from franchising authority, despite significant product differences among markets. The result is that cable subscribers of small systems pay approximately similar prices for half the number of channels of the largest systems.

Second, decisions of how many channels should be provided could be much easier and more profitable. The cable operators do not need to deal with whimsy and fastidious subscribers. They can easily find cheap or in some cases even free channels desperately seeking out an access to the bottleneck of local monopoly. Stated differently, the cable operators have the upper hand in dealing with diversity, while they should bear in mind that they will get the narrow edge of the sword to increase the price.

3. Diversity

The diversity measures show strikingly similar results with the price measures. Table 7 shows that integrated MSOs are providing greater diversity than are nonintegrated MSOs. Integrated MSOs provide their subscribers with approximately 18 different basic program types, while nonintegrated MSOs offer slightly more than 15 program types ($P < .05$). Integrated MSOs showed better performance in total diversity which includes basic channels, premium channels, and PPV options. But the difference in total diversity came primarily from the basic channels (2.43) since premium channels widened the gap only by .13 different program type.

In terms of the absolute diversity which measures, without controlling the number of channels, total different program types offered on a system, integrated MSOs show better performance than their counterparts do. Though the difference is very small, it is obviously significant from the viewpoint of statistics ($P < .01$). This is also a result of the differences in the number of channels operated. No difference in relative diversity supports this assertion. There is no significant difference in average diversity.

Table 7 Diversity

	Integrated MSOs	Non-integrated MSOs	Difference
Basic Diversity	17.77	15.34	2.43*
Total Diversity	20.24	17.66	2.57**
Absolute Diversity	.63	.55	.08**
Relative Diversity	.58	.58	.00
Average Diversity	.60	.57	.03

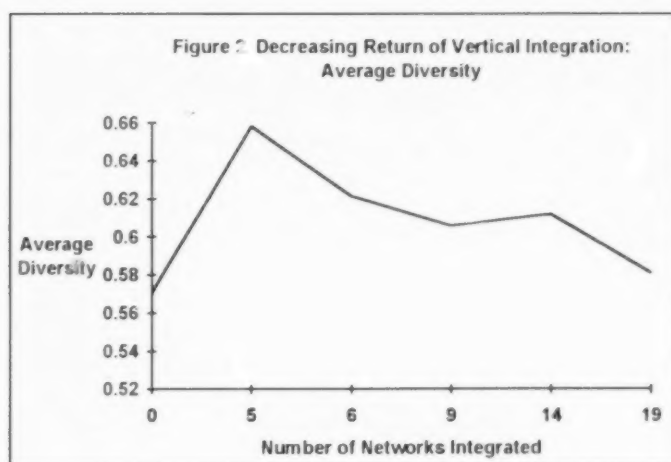
* $p < .05$; ** $p < .01$

To investigate the effect of the degree of vertical integration on the diversity, the same procedure was applied (Table 8). Here again, a decreasing return of vertical integration appears to exist (Figure 2). Compared to the integrated group, nonintegrated

MSOs provide less diversity. Among the integrated MSOs, however, the greatest diversity was found in Comcast and Cox (absolute diversity = .7266, relative diversity = .6582), whereas the least absolute diversity (.5838) and average diversity (.5809) were discovered in TCI. In general, absolute diversity and average diversity are decreased as the number of affiliated networks is increased ($P < .001$). But again, both measures of absolute diversity and average diversity are highly likely to be confounded with the number of channels operated. Nonintegrated MSOs provide the least different program types. In terms of relative diversity, there seems to be no consistent pattern. Although nonintegrated MSO group provides slightly greater diversity, the difference is insignificant.

Table 8 The Degree of Vertical Integration and Diversity

MSOs	Number of Affiliates	Absolute**	Relative	Average**	Cases
Nonintegrated	0	.5521	.5897	.5709	211
Comcast & Cox	5	.7266	.5899	.6582	40
Newhouse	6	.6414	.6014	.6214	19
Viacom	9	.6500	.5619	.6060	15
Time Warner	14	.6475	.5764	.6120	50
TCI	19	.5838	.5779	.5809	101
Entire Population		.5937	.5850	.5893	436
Total Cases = 441 Missing Cases = 5 or 1.1 Pct (** $P < .001$)					



An important implication from this finding is that vertical integration tend to contract an MSO's freedom of program choices. In other words, the natural propensity or economic imperative to favor their affiliates in carriage decisions may lead to the reduction of the absolute and average diversity since more integrated MSOs have less number of options in terms of diversity. For example, if TCI were to favor its affiliates, TCI would provide lower diversity than less integrated or nonintegrated MSOs because not every TCI affiliate provides exclusively discrepant types of programming. In contrast, nonintegrated MSOs can have much wider spectrum of programming options.

Table 8 seems to support this line of reasoning. The more integrated the system, the less the diversity. Both absolute diversity and average diversity are decreased as the degree of vertical integration is increased ($P < .001$). The lower absolute diversity and the average diversity of the nonintegrated MSOs are a direct outcome of their less channel capacities as indicated by correlation coefficient between those two variables ($r = .5683$, $P < .001$ for the absolute diversity; $r = .4398$, $P < .001$ for the average diversity). Lack of significant differences in the relative diversity supports this inference.

VI. Discussions

The monopoly position of local cable systems has been obtained through a declining long-run average cost. When a business enterprise possesses monopoly power at one level of production or distribution, vertical integration may enable it to extend that power to earlier or later levels, or use it for strategic advantages of access or product foreclosure. Such a case arises where a part of the integrated concern's field of operation lies in a

segment of the economy that is exempt from the general public policy of competition.

Cable business operates in a field which entry is limited by local governments.

The possibility of anticompetitive effects is remote as long as the vertically integrated concern controls only small fraction of the business done at each successive level of activity in the field of business in which it operates and so long as its size is not significantly different from the size of its rivals. But when a vertically integrated concern is a large one in the sense that it controls a substantial part of the total volume of business done at one or more levels of activity in its field of business, the fact that a single business unit extends over several successive levels becomes the source of special opportunities for the exercise of business power (Edwards, 1953). Hence monopoly power can be exacerbated.

Even in this case, however, the consumer welfare should be taken into account as an important standard for the final judgment. The data analyzed in this study provide by no means conclusive results. Instead, the findings show mixed meanings. While the integrated MSOs provide the consumer with greater diversity and lower prices than their nonintegrated counterparts, these effects are intertwined with the economies of scale. Where comparable economies of scale have been achieved, the nonintegrated MSOs showed a better performance in terms of the number of channels.

An interesting finding of this study is that within the integrated group, the consumer benefited more from the moderately-integrated MSOs than from the heavily-integrated MSOs. This means there exists a threshold that the consumer welfare could be maximized

from the scale economies and the vertical integration in the cable services. Uncovering the exact threshold is reserved for future research.

The FCC announced its new "cost-of-service" rules in 1994. In the new rate regulation, the FCC established a uniform rate of return at 11.25%. Along with taxes on the provision of cable service, franchise fees and the costs of meeting franchise requirements, programming costs are included in external costs that will be exempted from the base for the rate (CableWorld, 1994). In this new regulatory scheme, the extensive vertical integration in the cable industry casts another implication. Uninhibited by regulatory constraint, a cable monopolist could be expected to exercise full monopoly power in the exhibition stage and would not have any incentive to integrate backward into the distribution and the production stages. But if cable system is subjected to effective rate-of-return regulation, a unique incentive for vertical integration into the upstream stage is created: avoidance of rate-of-return regulation.

If regulation is restricted to the final stage of production and the firm is permitted to integrate upstream into the supply industry, then it is possible for the firm to circumvent the effect of the regulatory constraint completely by transfer pricing the internally supplied intermediate product above its marginal production cost. The practical difficulties inherent in allocating costs between the various levels of an integrated enterprise make the task of the regulatory body extremely difficult even assuming that it can bring together the records of the company from every level. Economists (Adelman, 1949; Stigler, 1951; Edwards, 1953, Kahn, 1971) have pointed out this possibility of avoiding the rate regulation by adopting a vertical integration. Simply put, "by integrating backward, the

regulated firm can increase its profits and avoid input distortions" (Blair and Kaserman, 1983, p.111). Therefore, faced with increasing trend in, and combination of, vertical integration and market concentration in the cable industry, much more vigilant investigations are warranted than ever. This study could not reveal the effect of rate regulation since the data were gathered before the new rate regulation. Future studies are expected to do this task.

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Appendix

Categorization of Channel Types

Local Channels:

Channel Type	Networks
Broadcasting network affiliates	ABC, NBC, CBS, FOX
Independent stations	Broadcasting stations (local & superstations)
Public broadcasting stations	PBS
Local origination	PEG access and other (weather, time, ad. etc.)

National/Regional Services

Channel Type	Networks
General interest	USA, TNT, Nick at Nite
Movie emphasis	HBO, Showtime
Arts/cultural emphasis	A&E
Entertainment emphasis	E! TV
Comedy emphasis	Comedy Central
News	CNN, HLN
Sports	ESPN, Prime Ticket, PASS (All regional sports networks)
Business/finance	CNBC, BIZNET
Public affairs	CSPAN I & II, Court TV, Public Interest Video Network
Music/videos	MTV, VH-1, Hit Video USA, TNN, CMT, Video Jukebox Network/The Box
Nature and science	Discovery
Weather	Weather Channel
Religious programming	ACTS, TBN, VISN, The Inspirational Network, EWTN
Shopping	QVC Networks, HSN I & II
Adult programming	Playboy, Spice
Travel programming	Travel Channel
Foreign language	Galavision, Univision, Jewish Television Network, The Greek Channel, SCOLA, International Channel
Education	Learning Channel, Mind Extension Univ.
Minorities/special interest	BET, America's Disability Channel/Silent Network
Women	Lifetime
Family	Disney, The Family Channel
Children	Nicklodeon
Movies/classic	American Movie Classics, Encore, Nostalgia
Current	Cinemax, Movie Channel
International	Bravo
Pay Per View	Action PPV, Cable Video Store, Guest Cinema, Request TV, Spice, Viewer's Choice I, II, Prism
Other	Cancom, Prevue Network, EPG